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ABSTRACT

This report summarizes information compiled at a Regional Workshop on Population and Family Education, organized by the UNESCO Regional Office for Education in Asia and held in Bangkok, Thailand, September 7 - October 7, 1970. The objectives of the workshop were to study how elements of population and family education can be incorporated in the curriculum of secondary and possible upper elementary levels of education; to prepare a few sample curriculum units in terms of analysis of content objectives; and to develop appropriate curriculum materials. Chapter 1 is devoted to the definition and objectives of population education while Chapter 2 deals with the writing of instructional materials. In Chapter 3 strategies for establishing a population education program are discussed. These strategies include convincing the appropriate people of the need for the program, planning and coordinating the various program elements, incorporating population education content into existing curricula, and developing the non-curricular aspects as teacher education and research. A summary of major conclusions is offered in Chapter 4. Appended material outlines an approach to population education concepts and content through studies in social sciences and natural sciences at three educational levels. Sample test questions, references, and conference data are supplied. (BL)

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OFFICE OF EDUCATION

POPULATION AND FAMILY EDUCATION

Report of an Asian Regional Workshop

Unesco Regional Office for Education in Asia
Bangkok, 1971

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The curve on the cover is a representation of world population growth over a period of about ten thousand years, into the 21st Century.

Regional Workshop on Population and
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7 September - 7 October 1970

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The views expressed in this publication are those of the participants of the Regional Workshop on Population and Family Education, and do not necessarily reflect the official position of Unesco. No expression of opinion is intended herein concerning the legal status or the delimination of the frontiers of any country or territory.

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PREFACE

Background

In November 1967, at its 77th session[1], the Executive Board of Unesco endorsed the perspective programmes in the field of population put forward by the Director-General for the subsequent decade in regard to Unesco's action as part of the co-ordinated United Nations programme. These broad perspectives covered :

a) a long-term programme of studies, including some cross-national analysis, concerning the reciprocal relations between the development of education and evolution of population ;

b) the promotion of demography as an academic discipline ;

c) the training of demographers at university level and the creation of opportunities for post-graduate demographic research ;

d) the dissemination in schools of knowledge about population data and problems ;

e) the introduction of population material into adult education programmes.

Within this long-term range, the Executive Board also approved an outline of programme possibilities for the period 1969-1972, in the education, social science and mass communication sectors.

In November 1968, at its 15th session, the General Conference of Unesco reviewed the above resolution of the Executive Board and an earlier resolution[2] of the Conference at its 14th session, together with the relevant resolutions and recommendations of the General Assembly of the United Nations and the Economic and Social Council, and resolution XVIII of the International Conference on Human Rights (Teheran, 1968). On this basis, and within the overall activities of the United Nations system, the General Conference

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1. Unesco. Executive Board. 77th Session, Paris, October-November 1967. Item 4.4.1 in the Board's Resolutions and decisions adopted ... at its 77th Session. Paris, 1967. (77 EX/Decisions).

2. _____. General Conference. 14th Session, Paris, 1966. "Resolution 3.252" in the Conference's Records of the ... 14th Session, Paris, 1966: Resolutions p. 57. Paris /c1967/ 396 p.

approved a co-ordinated programme in the fields of Unesco's competence as follows:

"...(a) Within Education: (i) by helping in the development of teaching materials, curricula, teacher training, adult education, women's education, community education, etc.; (ii) by studying the possibilities of including an educational pilot project on family planning in the experimental literacy programme.

(b) Within Social Sciences by carrying out studies on the different aspects of population and family planning, so as to establish the intellectual base for understanding the complexity of family planning in the context of various cultures.

(c) Within Communication: (i) by studying ways for the establishment and operation of efficient programmes within the fields of population and family planning; (ii) by providing relevant information and documentation."[3]

Regional Workshop on Population and Family Education

As one of the activities carried out in the implementation of these resolutions, a Regional Workshop on Population and Family Education was organized by the Unesco Regional Office for Education in Asia in Bangkok from 7 September to 7 October 1970. The objectives of the Workshop were to study how elements of population and family education can be incorporated in the curriculum of secondary and possibly upper elementary levels of education; to prepare a few sample curriculum units in terms of analysis of content objectives; and to develop appropriate curriculum materials.

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3. Unesco. General Conference. 15th Session, Paris, 1968. "Resolution 1.241" in the Conference's Records of the...15th Session, Paris, 1968: Resolutions, p. 23-26. Paris /c1969/ 332 p.

See also:

Ibid. "Resolution 3.251", p. 50-51.

Ibid. "Resolution 4.241", p. 61.

Also:

Unesco. General Conference. 15th Session, Paris, 1968. "Work plan Project 1.335.1 Experimental World Literacy Programme /Resolution 1.335/" in the Conference's Approved programme and Budget for 1969-70, p. 141-146. Paris, 1969. 564 p. (15C/5 Approved).

Ibid. "Work plan Project 32.311: Teaching of the Social sciences at university level /Resolution 3.231/" p. 328-330.

Ibid. "Work plan Project 32.311: Development of social science research /Resolution 3.232/" p. 330-332.

Ibid. "Resolution 4.301", p. 418-420.

Participation

Participants from 13 Asian countries and representatives of United Nations Agencies as well as other international and regional organizations interested in population and family education attended the Workshop. (List of Participants : Annex IV).

Inauguration

The Workshop was inaugurated by H.E. Dr. Sombun Phong-Aksara, Deputy Minister of Public Health, Government of Thailand. The Director of the Unesco Regional Office for Education in Asia delivered a message from H.E. Sukich Nimmanheminda, Minister of Education of Thailand, and a statement of welcome. (Copies of statements appear in Annex I).

Officers of the Workshop

The Workshop unanimously elected Dr. Saiyut Champatong (Thailand) as Chairman, and a Steering Committee consisting of seven participants, the three Unesco Consultants and the Secretary of the Workshop. (Officers of the Workshop: Annex II). Mr. J. Ratnaike, Education Adviser of the Unesco Regional Office for Education in Asia was designated Secretary of the Workshop.

Acknowledgements

The Workshop expressed its appreciation of the hospitality given by the Government of Thailand; the hard work on the part of the staff members of the Unesco Regional Office for Education in Asia in convening the Workshop; the valuable contributions of the Unesco Consultants, Professor T.S. Mehta, Professor V. Basnayake, and Mr. D. Chauls; and the participation and illuminating presentations and discussions given by specialists in the field - Mr. G.R. Amritmahal (ECAFE), Dr. S. Hashmi (ECAFE), Dr. G. Jones (NEDB), Mr. D. Segaller (Colombo Plan) and Professor M. Amani (Iran).

The Workshop Design

The management of the Workshop was charged to the Steering Committee, assisted by the Secretariat and the three Consultants. Each evening the day's programme was closely and frankly reviewed, and the next day's programme considered. Improvements and modifications were immediately put into effect as a result of the Steering Committee decisions. The formal evaluation of the Workshop was through a questionnaire designed jointly by the Steering Committee and the Secretariat.

To provide functional communication to the groups and participants, a Workshop Bulletin was used. It recorded the various daily announcements as well as material produced and to be used by the groups.

A library containing reference books on related content as well as material specific to population education, including curricular materials, was established for the Workshop. To facilitate the use of the library, the participants were provided with a complete bibliography of the library, including

descriptions of the types of materials. A session was devoted to further explaining the physical location of the contents. (Of this bibliography, the material on population education - but not on the general areas of population, demography, national educational syllabuses, the process of curriculum development, or year-books - is reproduced at the request of the participants in Appendix C.

A number of Plenary sessions were held to review content. Two days before each content plenary, a short list of readings was provided in the Bulletin. As follow-up of the plenaries, further short reading sequences were indicated.

The sub-plenary working structure of the Workshop was as follows :

Small Groups : composed of about six members each, with as much variation as possible in disciplinary backgrounds, experience, and country representation. These groups followed up and developed the Plenary Discussions in more specific terms. The outputs of the Small Group Discussions formed the basis for work in the later phases of the Workshop.

Disciplinary Groups : composed of about six members each, with homogeneous disciplinary backgrounds. These groups analyzed the content in preparation for producing the instructional material.

Working Groups : formed from within the Disciplinary Groups to prepare instructional materials.

Chronologically, the Workshop was divided into four operational phases : (See Agenda, Annex III).

Phase I : Introduction of Potential Content
(Plenary/Small Groups)
(September 7 to September 10)

Phase II : Definition/Objectives of Population Education, and Content Analysis
(Disciplinary Groups/Plenary)
(September 11 to September 16)

Phase III : Preparation of Curricular Materials
(Working Groups/Disciplinary Groups/Plenary)
(September 17 to October 2)

Phase IV : Issues Relevant to Implementation and Consideration of Draft Final Report
(Plenary)
(October 3 to October 7)

The Workshop was designed so that each phase of the Workshop prepared the ground for the succeeding phases of greater depth. Phase I prepared the participants for Phase II, Phase II for Phase III, and Phases I, II, III for Phase IV. Within each phase were a number of mini-spirals for the same development purpose.

Phase I involved a review of possible content that may become inputs into population education. Aspects of demography, economics, sociology and biology were presented and discussed. This phase served essentially as an exploration of possible content at the Plenaries and the Small Group Discussions. Straight "lecturing" was minimal. Group discussions generated a frank, intensive, and extensive dialogue among participants. To assist these discussions, a list of possible discussion topics had been sent to each participant, together with the Agenda and the Main Working Document, several weeks prior to the Workshop.

Whenever the nature of the topics warranted, lists of conclusions were produced by the Groups. Such lists included variables relating to demographic changes, factors, relationships between population growth and economic and social development. This exercise not only exposed the broad perimeter of relevant knowledge and significant issues, but also generated useful working papers by the Small Groups for the next phase of the Workshop, the identification of general and specific objectives.

In Phase II the first exercise in the development of general objectives was purposely unstructured, except for the documents produced by the Small Groups in their discussions in Phase I. These objectives were gradually made more specific, with a Plenary presentation mid-way, (after the participants had obtained a preliminary experience in the activity), on the definition and general objectives of population education.

Since the main purpose of these Phase II activities was to assist in specifying the content for writing instructional materials in Phase III, the next operation involved the extraction of potential content topics from the general objectives. This was done by a sub-committee of the Workshop.

Identification of the potential content permitted the selection of preferred content areas to be worked on. Since this was to be done in terms of a social sciences/natural sciences breakdown, new groupings of the participants were needed. Disciplinary Groups of about six members each, with homogeneous disciplinary backgrounds, were formed. The further analyses of the content took place in the Disciplinary Groups after a Plenary Session for which a note on Content Analysis was distributed. When the content analyses were being translated into instructional materials, Working Groups were formed within the Disciplinary Groups.

No uniform physical format was utilized for the instructional materials, but elements that were considered necessary to be included, such as content and behavioural objectives, teaching procedures and teacher/pupil activities, were specified in all. A Plenary was used to introduce existing population education materials, and their different types.

Evaluation items were also to be included. Just prior to their construction, a note with illustrative examples of items testing for all aspects of the knowledge domain was distributed to the participants. To clarify the different levels of knowledge objectives, a single content each, in the social sciences

and the biological sciences, was chosen, and test items were provided illustrating all the levels, factual recall, comprehension, application, analysis, synthesis, and evaluation. These are reproduced in Appendix B. A note was also provided indicating the different levels in the attitude/value and manual skill domains, though participants were not necessarily attempting test questions in these domains.

In addition to their function as illustrations of testing for "more than factual recall" these sample test questions were intended to provide specific guidance during the writing of the instructional materials, so that the methodologies of teaching implicit in the instructional materials would reflect opportunities for teaching for "more than factual recall".

When the writing of the instructional materials had progressed sufficiently far, criteria for evaluation of the materials produced were discussed in Plenary, and a list of such criteria distributed.

During the writing sessions, time was budgeted for Plenaries as needed. A presentation was made about film loops and their educational use For this purpose a film loop on population growth was specially made, prior to the Workshop, and shown and discussed. A film on family planning programmes was also shown. The films, and the several posters from different countries displayed at the Workshop, were intended to portray the varieties of tangential knowledge likely to impinge on the school system today.

Having addressed themselves to the definition, objectives, and content of population education, and having produced instructional material, the participants were in a readiness to consider issues relevant to the implementation of a population education programme. In this last phase of the Workshop, consideration was given to strategies, teacher education, research and international assistance, and to the Draft Final Report.

INTRODUCTION

The population problem

At the root of the problems facing mankind is that of population growth. The entire history of human life on this planet until about 1850 was required for the population to reach one thousand million; only 75 years were required for the thousand million to double. The three-thousand-million level was reached (in the early 1960s) in about 37 years. If this trend continues, the fourth thousand million will take only about 15 years, the fifth thousand million less than 10 years...

Since the countries of Asia contain well over half of these rising totals - and are growing at an even more rapid pace than the world average - the core of the problem is here.

The effects on man's life of living in densely populated and/or rapidly growing communities or nations are enormous. Perhaps one of the most important of these is the deep "bite" which population growth takes out of any increase in a country's economic production. In one way or another, either as a cause or as a factor which exacerbates an existing situation, the population problem affects the quality (and quantity) of early child-rearing, of formal education, of housing, of employment opportunities, of transportation facilities, of medical care, of available food - and even of the air we breathe and the water we drink, ... and this list is incomplete.

Why has it occurred? Contrary to popular belief, the main cause of the population problem is not a rise in the birth rate. Ironical though it may be, the reason for this major world problem is the effectiveness of the solution we have found to some of the major problems of the past - most notably, famine and disease. It is 'death control' which has so altered our population situations.

Given this reality, two alternatives are available: an increase in deaths or a decrease in births (other theoretical alternatives, such as migration to other planets, are not at present or in the immediate future realistic possibilities). Increasing the death rate is morally untenable. Decreasing the birth rate is possible.

To influence people's decisions on this factor, a variety of national and private population programmes have been established. Their success has varied considerably.

Why population education

Due to the realization that this is where the problem is most immediate, existing population programmes tend to be aimed at those already in the reproductive age groups. However, over 40 % of the people in this region are still under fifteen years of age. This group will strongly influence the demographic situation in Asian countries in the next few decades. If their future population behaviour resembles that of their own parents, today's population problems will be viewed, by comparison, as only minor disturbances. If, on the other hand, these young people become cognizant of the factors of their population situation, and recognize that they necessitate more rational behaviour on their part, some of the worst consequences may be avoided.

It is important to view decisions in this area as being made on an ever-more-rational basis. If enforced controls on people's behaviour are to be avoided, this development must occur. For this reason, the formal school system is an ideal institution to convey what shall later be defined as population education. The population situation should be conveyed neither as propaganda nor merely as information, but rather taught rationally as an entity with various and complex ramifications. To do this requires sufficient time plus an institution with a structure designed to convey concepts in an organized, articulated manner. The formal school system most readily fits this description. It also has the distinct advantage of having considerable experience in being used as a means to bring about attitudinal and behavioural change.

At the outset, it is important to stress that population education is not sex education, which is generally concerned with, among other content components, certain kinds of inter-personal male-female relationships associated with human sexuality ; in fact, many of the population education outlines developed to date do not include this aspect. Chapter One contains a further discussion of the entire question.

If educational systems are to be relevant to the needs of their societies, they must address themselves to the problems faced by their societies. In nearly every country of the region, population is one of the most important of these problems.

CHAPTER ONE

DEFINITION AND OBJECTIVES OF POPULATION EDUCATION

Definition of population education

The reason for including population matters in the content of school programmes in the region is the hope that this will lead to a change in behaviour.

As an educational programme, the approach of population education is to present clearly to the pupils the multi-faceted aspects of their population situation. By so doing, the assumption implied is that a comprehension of the total picture will lead the pupils eventually to make more rational decisions concerning their own behaviour on population matters. Given world realities, those decisions are expected to be for smaller families. Opposite decisions may nevertheless occasionally be justified.

Within this context, a variety of possible definitions was discussed. The Workshop initially considered a listing of the topics to be included within a population education programme as a sufficient definition. Later, however, it was felt that a more formal definition would also be helpful. The following was believed to be a succinct description of what the Workshop would like to see population education achieve:

> Population education is an educational programme which provides for a study of the population situation in the family, community, nation and world, with the purpose of developing in the students rational and responsible attitudes and behaviour toward that situation.

Objectives of population education

In operational terms, it was recognized that population education consists essentially of the addition of certain new topics (and/or the reorganization of old ones) in an existing school programme. Lengthy discussion revolved around the clarification and modification of some of these topics, the rejection of others, and their final organization into a meaningful pattern. It was decided that such a list would be of greater impact if expressed in general behavioural terms. Finally, since the list which evolved appeared in highly synthesized form, it was felt that a brief content elaboration - informative rather than inclusive or restrictive in nature - should be appended to it. This list is presented in Table A.

TABLE A

General objective	Elaboration
To assist the pupil to acquire knowledge[1] of:	
1. basic demographic concepts, processes and methodologies	1. - location, collection, collation, manipulation, interpretation and evaluation of local, regional, national and world population data - birth, death, migration, growth rates - age structure - various fertility indices - the quality of population data
2. static and dynamic description of the population situation, at the micro-and macro-levels	2. - the history of population changes locally, nationally, and worldwide, with emphasis on the falling death rates - trends of population growth of the family, community, nation and world
3. the determinants of population growth	3. - social norms concerning family size and spacing - psychological influences on fertility behaviour - economic influences on fertility behaviour - influences on mortality - influences on migration - growth of plant and animal populations
4. the consequences of population growth	4. - relationship between population growth and macro-level socio-economic development

1. Knowledge is used here in the cognitive taxonomic sense (see Benjamin Bloom et al., Taxonomy of Educational Objectives. Handbook I: Cognitive Domain, New York, Mckay, 1956) to imply varying levels ranging from factual recall and comprehension to application, synthesis, analysis and evaluation.

TABLE A (Cont'd)

General objective	Elaboration
4. the consequences of population growth	4. - effects of rapid population growth on maternal and child health - effects of rapid population growth on the availability of welfare and other services - effects of rapid population growth on the availability of housing - psychological and sociological consequences of high population density - ecological consequences of resource use deriving from large or rapidly growing populations - other effects of rapid population growth on the family and community - population growth and the availability of food - population growth and the availability of natural resources
5. the human reproductive process as a basis for understanding human fertility	5. - the formation of gametes (spermatazoa and ova) - the union of gametes (fertilization) - the birth of offspring (fertility)
6. the national and international population policies and programmes	6. - the nation's changing population policies - family planning programmes in the community and nation [2] - other population programmes - international organizations involved in population programme

2. This is not intended to imply that the detailed offerings of a local family planning clinic be included in the programme. Rather the demographic effects of the clinic's presence should be the emphasis of the school study. Similarly, on the national level, attention should be given to the impact of family planning (as well as other) programmes on the reduction of birth rate.

TABLE A (Cont'd)

General objective	Elaboration
To develop:	
7. rational and responsible attitudes and behaviour toward family size and national population programmes.	7. - rational and responsible attitudes and behaviour toward number and spacing of children - rational and responsible attitudes and behaviour toward population programmes

a) Elements of the objectives

i. Consequences. In developing this list of the objectives of population education, a fairly extensive review of the literature within the field was conducted. It was discovered that the most pervasive elements of existing definitions or objectives were the consequences of rapid population growth. At the macro-level, the effect of rapid population growth on economic development was stressed; at the micro-level, factors such as food, health, employment opportunities, housing, education and recreation were emphasized.

ii. Determinants. To balance the treatment of consequences, or effects, of population growth, the Workshop felt that a population education programme needs also to emphasize the determinants, or causes, of that growth. This discussion proved most difficult, largely because the factors which motivate people toward their population decisions are not clearly known. It was recognized, for example, that in many societies a social norm exists tending to favour the development of large families. How this standard of behaviour has developed, what its components are in a given society, and how it may be changed, are only vaguely understood. Similarly, other determinants of fertility, mortality, and migration behaviour are less clearly comprehended than are the consequences of population growth. The interactions of the different types of determinants further complicate matters.

Despite these difficulties, the Workshop considered the inclusion of the determinants of population growth as an essential aspect of a population education programme. This may even be the most important part of the programme, since the stated goal is to develop in the students the knowledge and attitudes upon which to base their own more rational population behaviour. The factors which motivate that behaviour are thus of immediate relevance.

iii. Demography. The third element in the list of objectives of population education, demography, serves as the link between the determinants and consequences. In order to assess changes in fertility, mortality and migration behaviour, and in order to predict their consequences, it is necessary to be able to measure these changes. This is, in essence, the role of the study of demography. The Workshop felt that pupils should be able to comprehend and employ certain basic demographic tools, such as birth- and death-rates, and age pyramids. Also, an understanding of the current situation with respect to the existence and quality of population data should be included. Finally, local, national and worldwide trends in population growth should be analyzed. It needs to be strongly emphasized that the main cause of the population explosion lies in the great decrease in death-rates.

These three elements - the determinants, demography and the consequences - form the basis of any population education progamme. Beyond this, two other items were considered relevant.

iv. Human reproduction. The first of these is a study of the physiology of human reproduction. The consensus of the Workshop was that a basic understanding of this factor was an essential component for rational and responsible decision-making. Discussion, at times rather heated, of related topics, led to the conclusion that "knowledge of the possibility of voluntary fertility control" be noted as an addition which countries may wish to make to this list. It is not, however, central to population education.

v. Population policies and programmes. Finally, it was felt that pupils should be aware of the nation's policy on population. Any population programmes, especially those with implications for the local community may also be noted.[3] Population programmes in other countries, and international assistance to population programmes were also considered as a legitimate aspect of a population education programme.

vi. Affective and psychomotor objectives. Although relevant affective objectives may be considered to be implied by the knowledge objectives indicated, the Workshop felt that it was important to stress that changes of attitudes (and eventually changes of behaviour) are integral parts of the programme. Specifically, it is the goal of population education to assist pupils to include knowledge of their population situation in making rational decisions. A prerequisite to relating knowledge to behaviour is the altering of one's attitudes in the light of that knowledge. Thus, the development of rational and responsible attitudes and behaviour toward both micro- and macro-level population matters was included in the list of objectives of population education.

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3. See footnote 2 on page 15.

Psychomotor skills implicit in the acquisition of knowledge are implied in the general objectives.

b) Population education versus sex education

There is considerable worldwide confusion concerning the relationship between population education and sex education. A first aspect of the misunderstanding lies in the fact that definitions and descriptions of each vary considerably from country to country, and even within countries. Often the term 'sex education' itself tends to arouse considerable opposition even prior to an understanding of its contents.

A definition of population education has been offered previously. A study of some sex education literature suggests the following as its major components:[4]

- human physiology and reproduction
- contraception
- social interactions associated with human sexuality.[5]

As clarified by the general objectives of population education provided in this report, the goals of the two programmes differ substantially. The consensus of the Workshop was that there may be a degree of overlap in the topic of 'human reproduction', but that sex education's other emphases are excluded from population education.

c) Controversial versus non-controversial topics

In attempting to establish, or to expand, a population education programme, it is essential to be continually reminded of the fact that, with the present state of development of the "discipline", structurally just the addition

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4. One definition of sex education is: "Sex education is to be distinguished from sex information and can be best described as character education. It consists of instruction to develop understanding of the physical, mental, emotional, social, economic, and psychological phases of human relations as they are affected by male and female relationships. It includes more than anatomical and reproductive information and emphasizes attitude development and guidance related to associations between the sexes. It implies that man's sexuality is integrated into his total life development as a health entity and a source of creative energy". ("Growth patterns and sex education" Journal of School Health, 37 Supplement: iv, May 1967)

5. In Western countries, the latter is the dominant emphasis of sex education programmes. Human reproduction had been included in biology syllabuses long before the advent of sex education. Contraception continues to be a controversial topic.

of a series of topics into an existing curriculum is all that is taking place. The justification for doing so is the assumption - and it is only an assumption - that the inclusion of a particular topic in a given curriculum and grade level will enhance the possibility of achieving the general objectives.

It is a reasonable hypothesis that each topic is not of equal value toward achieving the major objectives of population education. Some, in fact, may have little relevance. At present, empirical evidence is insufficient to justify the superiority of any particular topic or topics. Decisions have to be based on indirect evidence - including the opinions of educators who know their cultures - to suggest which topics to introduce first or to stress the most.

Certain of these topics are considerably more controversial than others. The list of controversial population education topics will undoubtedly vary from country to country. In some instances, the attempt to include such controversial topics in population education may, in effect, destroy the entire programme before it has a chance to prove itself. Since there is no real proof of the relevance of any of the listed topics toward the achievement of population education's goals, it may be advisable to exclude - either temporarily or permanently - any topics which may endanger the programme's very acceptance and implementation. Thus, for each country, it may appear necessary to separate the topics into two categories, refer to the non-controversial ones as population education, and devise a separate title for the others.

d) Objectives by level

It was the consensus of the Workshop that population education belongs at all levels within the school system. A further breakdown of objectives for each level is a task which must be performed in each country, together with the more detailed content analysis and preparation of materials. This breakdown should be undertaken with regard to the country's educational structure and development, and thus was not a task for this Workshop.

Nevertheless, certain general conclusions concerning the objectives at various levels can be expressed. In both primary and secondary education, the intent of the programme, as indicated earlier, is to influence the students to eventually make rational decisions on population matters. In addition, at the higher levels, where those remaining in school represent a much smaller proportion of the age group, the leadership roles they may play in the establishment, maintenance, and expansion of population policies and programmes are important. For these students, therefore, a comprehensive picture of the various ramifications of the population problem - from the regional and national rather than the family and community viewpoint - may be more relevant. At lower grades, on the other hand, the macro-level picture may be unnecessary. This distinction coincides with the consideration that abstract topics are more appropriate for older pupils.

CHAPTER TWO

INSTRUCTIONAL MATERIALS FOR POPULATION EDUCATION

Content

The concepts for which instructional materials were written were selected by the participants from the body of concepts which they had developed at the preceding stage in the sequence of Workshop activities. This voluntary sampling of content was found to be biased toward concepts related to the family in the case of the social sciences, and to reproduction and nutrition in the case of the natural sciences. One participant chose to use population data for teaching simple statistical concepts in a mathematics course.

Desiderata

Before the writing started, there were discussions on the characteristics which would be desirable in instructional materials. A list of the characteristics that emerged from the discussions was circulated amongst the participants. Among these were the following:

1. In regard to content:
   a) The content should be related to the objectives;
   b) Concepts should be supported by up-to-date and accurate data wherever possible;
   c) The content should be suited to the pupils' maturity level;
   d) It should be satisfying to him, and useful to him, and to the country.
2. In regard to skills, the instructional materials should help to develop in the pupils the skills of:
   a) Collecting and recording data;
   b) Distinguishing between data and interpretations of data;
   c) Verbalizing ideas;
   d) Recognizing underlying assumptions;
   e) Making explanatory guesses (hypotheses);
   f) Recognizing, where necessary, gaps in existing knowledge.

3. With regard to attitudes, the instructional materials should help to develop attitudes which the country considers to be valuable.

4. Miscellaneous characteristics were:

   a) The material should be appropriate for the pupils' reading level;

   b) Teachers' guides should give adequate guidance to the teacher in regard to background material, discussion techniques, and procedures for practical work. They should not lend themselves to extensive dictation of notes by the teacher. They should give assistance to the teacher to evaluate the pupils' progress.

Form

Participants were free to decide whether their instructional materials were to take the form of student materials (such as text material and supplementary reading material including stories) or of teacher's guides. The format of the teacher's guide too was left open, it being recognised that there was not enough evidence at present to decide whether one format is superior to another. Column as well as other formats emerged.

Difficulties

With the purpose of sharing the experiences of writing instructional materials at the Workshop with others who may wish to generate similar Workshops, the participants identified the difficulties they had met with while writing the materials. The kinds of difficulties reported by the participants are as follows:

1. Difficulties in regard to the choice of the content intended to be taught in school:

   a) It was difficult to judge whether an item of content selected for a given grade level in school was really suitable for that grade level.

   b) In the absence of precise knowledge of the patterns of school curricula in the region, it was difficult to write confidently for classroom use of the materials. As a result, there was a tendency toward writing in a general way rather than for a specific classroom.

   c) Some of the topics originally selected proved, during the writing stage, to be unrealistic for classroom use and had to be abandoned.

   d) Several topics proved to be almost inextricable mixtures of several disciplines (such as social sciences and natural sciences) and it required effort to write a teaching sequence for one discipline alone.

2. Difficulties in regard to the type of instructional material:

   a) Because of the freedom in the type of instructional materials to be produced, a variety of types emerged (e.g. play-writing, topic-listing, teaching activities) so that maintaining coherence within the Groups was at times difficult;

   b) There was relatively little in the way of instructional materials on population education from which guidelines could be drawn for writing materials at this Workshop. This gave rise to the difficulty of having to create one's own guidelines.

3. Difficulties in writing a teaching sequence:

   a) English was not the mother tongue of most, if not all, of the participants;

   b) Translation of objectives into content was difficult;

   c) Reference materials were not adequately available, especially data from individual countries;

   d) Where data were available, it was often difficult to see how best to use them in devising a classroom teaching sequence;

   e) The writing of instructional materials called for special skills. Lack of classroom teaching experience seemed to aggravate the situation;

   f) If content specialists had been readily available, the ensuring of accuracy of the content of the materials would have been easier and more certain.

4. Miscellaneous

   a) As there was no artist at hand whose services could be sought, it was possible that a useful stimulus and tool for producing instructional materials was missing;

   b) Within the social sciences, participants divided themselves into three groups by school level. Co-ordination among different groups writing on the same topic but for different levels was difficult. Writing groups tended to isolate themselves. This tended to give rise to "unnecessary" duplication of effort;

   c) The writing activities may have started earlier in the Workshop. This sometimes intensified the amount of thinking which was expended on the written materials.

CHAPTER THREE

STRATEGIES FOR ESTABLISHING A POPULATION EDUCATION PROGRAMME

The discussions on strategies for establishing a population education programme soon led to the realisation that it implied a number of very different types of strategy. There were strategies for convincing the appropriate people of the need for population education, for planning and co-ordinating the various elements of the programme, for incorporating population education content into existing curricula, and for developing the non-curricular aspects of the programme, such as teacher education and research. Once these types of strategy were sorted out, separate discussions of each were held.

It was the consensus of the Workshop that, because of the limited time available, these discussions were inadequate. In several instances it was felt that the topic merited a far more detailed analysis, perhaps by another regional gathering similar to this one. With this proviso, the following summary of these discussions is provided:

Decision-makers

The Workshop recognized the significance of convincing decision-makers of the importance and urgency of introducing population education in school programmes of Asia. The participants at the Workshop felt that they had a special and personal responsibility to reach decision-makers and make efforts to convince them.

Other suggestions included :

1. Seminars, and visits by expert teams initiated by Unesco and other international organizations, to the member countries, specifically targeted on decision-makers, emphasizing the importance and urgency of the population problem and the need for and benefits from a population education programme ;
2. Literature on population problems and population education to be made available to decision-makers by Unesco and other international organizations. This may take the form of specially prepared kits, aimed at particular classes of

. decision-maker, and containing relevant elements such as explanations, case studies, and curricular materials;

3. International and regional seminars, and visits to countries undertaking population education programmes, by the decision-makers, particularly from the Ministries of Education, initiated by Unesco and other international organizations;

4. Generation of public opinion in favour of population education in the member countries, by personal and other contacts with influence agents such as legislative and parliamentary personnel; women's associations and other social and cultural organizations; parents/teachers associations; newspapers, radio and other mass media agencies;

5. Providing decision-makers with a systematic and realistic plan for implementation, and systematic evaluatory evidence of progress, if population education is permitted on a pilot scale.

Planning elements of the programme

The Workshop recognized that there are many dimensions that needed planning and integrating if a population education programme were to be implemented in the member countries. Among the processes that would need close consideration and co-ordination are:

1. making the plan;

2. communicating it to the various action agencies, such as the teachers, teacher educators, administrators, supervisors, principals;

3. implementing it and controlling and guiding it in the schools and teacher-education institutions, which would involve new logistic patterns, and the provision of human, material, time and space resources;

4. evaluating it systematically and providing feedback and interpretation for the improvement of the plan and the programme;

5. initiating needed action-research.

When member countries take the decision to implement a population education programme, international assistance may be sought to assist in the planning and co-ordination of the vital elements in the programme.

Types of courses

There are a number of different ways of adding population elements to existing school curricula. Some require considerable modification of the present

programme, others do not. When complete programmes of population education are finally prepared, it is very likely that some combination of strategies will be employed.

Each of the strategies indicated below may be applied in either a single or a multi-disciplinary setting. Given the nature of the topic of population, and the fact that it does not fit readily into any one existing school subject, the second approach might appear to be preferable. However, given the realities of most school structures, and the newness and difficulties of team teaching, the single-disciplinary approach is probably more practical at this juncture.

The following types of strategy were discussed, and some of the ensuing advantages and disadvantages are summarized:

1. Single course on population education. One possibility is to develop a term/semester, or a year course, concerned solely with population. The basic advantage to be gained by this approach would be the depth of awareness to which it would be possible to bring the pupils. Also, far fewer teachers would need to be trained. An important disadvantage is that the course would be a major (and possibly unwelcomed) addition to already over-burdened time-tables. Secondly, if the course were presented at a relatively high level within the system, the many pupils who have left school before reaching this level would be receiving nothing. If the course were presented at a low level, there would be certain concepts which could not be adequately covered. Finally, it would be difficult to find or train teachers in sufficient depth to teach such a course adequately, especially when one considers the multi-disciplinary nature of population study.

2. Unit in a subject area. A second alternative is that of the unit approach. A series of related concepts may be woven into an instructional scheme which takes roughly from one to four weeks of classroom time. A number of units, in different school subjects and different grade levels, would be presented. Since children vary in the degree to which they understand concepts, in the time in their lives at which a particular concept becomes meaningful, and in their response to teaching strategies, the unit approach has the advantage of providing opportunities for significant variety in content chronology and methodology. Its disadvantages are the difficulties of altering curricula and of training teachers in many subjects and grades.

3. Permeation. A third strategy is to restructure all existing curricula so that the population problem permeates many topics. Thus, although there may never be a population unit per se, relationships between population and other topics would constantly be noted and examples for emphasizing other learning would continually be based on population data. The major problem with this technique is that it is difficult, time-consuming, and expensive to alter so many curricula. It also may result in pupils with a wide knowledge of population 'facts', but little comprehension of the relationships among them. On the other hand, this approach would be very valuable if the variety of population facts can occasionally be summarized by a unit specifically designed for this purpose.

4. Through the teacher. A fourth strategy is to provide pre- and in-service training so that teachers obtain sufficient competence in this area to be able, in turn, to incorporate population spontaneously into their teaching of other topics. The major problem, of course, is to devise and implement such training programmes. This strategy will, if effective, produce highly-motivated teachers. Since this is such an important factor for any educational programme - and especially one aimed at attitude change - it should have high priority. Many teachers in the region are inadequately trained even in the more traditional areas of the curriculum, however, and it may be expecting too much to hope that they can or will experiment with population education. If, on the other hand, the teachers are given both an adequate training programme and some type of instructional curricular materials the results could prove favourable.

> Note: The particular strategy adopted for the Workshop was the unit approach, chosen primarily for its ease in fitting into the structure of this type of gathering. Although the various strategies were discussed, no conclusions were reached. It was pointed out, however, that mathematics is the school subject in which the infusion of relatively narrow population concepts and data appears to be simplest. It was also noted that at least one country of the region has tentatively decided to prepare separate population courses as described in (1) above.

Choice of level

Another aspect of the discussion of strategies for establishing a population education programme concerned the choice of the most appropriate level in which to begin. It was the unanimous consensus that elements of population should eventually be incorporated into all levels of the school system. However, it was also recognized that limitations of human and financial resources demanded that initial programmes be somewhat narrower.

The Workshop discussed positions for and against placing emphasis on elementary or secondary level, and decided that it was inappropriate to suggest a clear-cut recommendation for countries to begin their population education programmes at one level or another, since this decision is a function of available resources as well as other factors. Nevertheless, the consensus was that in terms of the needs of the region the priority level was the upper primary/elementary.

The discussion of advantages and disadvantages of beginning population education at each level is summarized below :

1. Arguments for the primary level

a) More students can be influenced by a primary-level programme. In many countries of the region, a far greater proportion of the age-group attends primary than secondary school. For the region as a whole in 1967, the enrolment ratio for first, second and third levels of education was in the proportion

of 75:22:2.6. In many countries of the region, a programme at the secondary level is not likely to have much impact because of the small proportion of students actually attending school at this level. With the exception of four countries of the region, on the other hand, a primary level programme can potentially reach a minimum of 60% of that age-group.

b) Change requires local rather than outside leaders. The majority of village leaders in Asia probably do not go to secondary school. Graduates of a village primary school who continue their education to the secondary level are often forced to leave their home community to do so. In many areas, it is uncommon for them to return, and thus any influence which they will have in their village becomes highly diffuse. On the other hand, pupils who attend the village's elementary school, but do not continue to higher education, are far more likely to remain in the village. Those who are the best educated within the village (usually those who have completed primary school) are very likely to become the local opinion leaders. A population education programme at the primary level - and especially at the upper primary level - is thus more likely to influence the local community's future opinion leaders.

c) The primary school represents cosmopolitan wisdom in the village. Especially in rural areas, the primary school often represents the major presence of the government in the community. Secondary schools are largely located in towns and cities. The primary school thus has an important psychological influence as the local source of outside wisdom. This influence often extends beyond the pupils to parents and non-school-children.

d) It would be simpler to add population content to a primary syllabus because greater flexibility in scheduling is available. At the primary level, a single teacher is likely to remain with a class for most of all of the school day. The curriculum is usually identical for all pupils, and generally not made rigid by major examination requirements. It is thus a relatively simple matter to add another topic to each pupil's programme. At the secondary level, however, pupils move from class to class and do not all follow the same programme. The examinations play a significant role in the degree of flexibility of the curricula. Where elective classes exist, population content in those subjects would not expose all pupils to the same ideas.

e) Secondary pupils will later have smaller families anyway. It is known that even without a school population education programme, better-educated urban dwellers have a tendency now to have smaller families. The addition of secondary level population content to their background may, in effect, be a less productive investment of already scarce resources than investing at the primary level.

f) Attitudes on family size may be formed at a young age. Studies in the United States and India have shown indications that primary-age-pupils have already given thought to the size of their future families. Among grade-VI pupils in the former and grades-IV-VII pupils in the latter, more than 75%

reported having already developed an 'ideal' family size - both for themselves and for others. Thus, an educational programme at this level designed to influence this attitude would be appropriate on developmental grounds.

2. Arguments for the secondary level

a) Secondary pupils are nearer to their reproductive decisions. Secondary school pupils are older than primary school pupils, and are therefore closer to the time at which they can be expected to make the behavioural decisions which a population education programme is designed to influence. The time difference between any educational programme and its desired response should be as short as possible if the programme is to be effective.

It should be pointed out, however, that the grade difference between the two programmes is not necessarily equal to the pupils' age difference between them. Primary pupils (who do not continue their education) may be considerably older than the 'ideal' age for that grade - due largely to the common practice (especially in rural areas) of missing an occasional school year to help on the farm, or to care for a younger sibling, or to recuperate from the many endemic diseases. This is less true of secondary pupils who tend to come from wealthier, as well as healthier, families. It should also be noted that secondary pupils are probably more likely to marry at a later age than primary pupils, and thus a programme for the younger group may not be much further in time from their potential reproductive behaviour.

b) Secondary pupils constitute the society's future leaders. Those who attend secondary school are much more likely to become the middle and higher level political leaders of the future. These are the people who will be making the future legislative and administrative decisions to alter, to expand, or to constrict various population programmes. It is important that those decisions be made on the basis of a comprehension of the various and complex ramifications of the population problem - a task for which a secondary school programme is better suited.

c) Controversial topics are more easily introduced at the secondary level. If some of the more controversial parts of population education are to be included in the programme, there will be less objection to them at the secondary level. The students at this level are more mature and better able to handle difficult topics.

d) Curricular materials for the secondary level would be easier to prepare. There are several different reasons why it probably would be quicker and less expensive to prepare secondary than primary population education materials. The few school population education materials which have been developed (in several countries) are largely for the secondary level. To the extent that a secondary programme can use aggregate data, while a primary programme should use micro-level data, the former has the advantage of more readily available (although perhaps not very accurate) information. Finally, any primary

programme would need far more materials (and teacher training programmes) simply because there are more schools, teachers and students at this level.

e) The quality of secondary school teaching is better. In many countries of the region there is a significant difference in the preparation of primary and secondary teachers. Often the latter have had considerably more years of formal and informal education. Also, since secondary schools are more often located in urban areas, the 'continuing education' which a teacher from such a school receives - from the variety of more cosmopolitan influences - is greater than that available to the more intellectually isolated (because geographically isolated) village primary school teacher.

A third factor responsible for the better quality of instruction at the secondary level is that secondary teachers usually have smaller classes. For the region as a whole in 1967, the pupil-teacher ratio at the primary level was 45:1, whereas at the secondary level this ratio was only 20:1. All of these factors combine to produce a situation in which the teaching quality of the secondary school teacher is usually superior to that of his primary school counterpart.

f) There are fewer secondary schools than primary. There are far fewer teachers too at the secondary level. These mean that the acquisition of human and material resource allocations are more practicable at the secondary level and the implementation of in-service and school programmes more manageable.

g) The demonstration of 'success' is important for the further expansion of population education. To continue to command the necessary resources, any programme needs to 'prove itself'. A secondary programme, due to the smaller numbers and better trained teachers, is likely to have results which can be evaluated more quickly and accurately. The greater knowledge content at the secondary level is more easily assessed than the largely affective objectives at a lower level.

Teacher education

The best designed outputs of curriculum design operations would remain mere sterile academic exercises, if their implementation in the instructional system did not take place. Quality implementation of a population education programme in the schools of Asia necessarily requires effective communication channels between the curriculum designer and the instructional system, and not only in terms of the printed word. Two such significant sets of channels of communication are those to the teacher from teacher educators, and those to the pupil from teachers. The teacher-pupil channels cannot function effectively without high efficiency of the teacher educator-teacher channels.

The Workshop emphasized the high priority that needs to be given to the adequate preparation and in-service training of teachers if the implementation of a population education programme is to succeed.

With this recognized emphasis in mind the Workshop concluded that the following actions need to be taken:

1. At the national level

   a) Population education should become an integral part of teacher education programmes at all levels. This may be a separate course, or its elements may be incorporated in the existing curricula;

   b) Attempts should be made as soon as possible to organize workshops, seminars, discussions and lectures on population education for teacher educators and teachers in training;

   c) Workshops should also be organized to develop curriculum materials in various forms (curricula guides, source-books etc.) for teacher education;

   d) In-service training programmes for population education should be organized. Follow-up programmes may also be taken to evaluate their effectiveness systematically;

   e) National governments (and other agencies) should make available fellowships for studies abroad for teacher educators in this field, and thus build a nucleus for leadership at the teacher educator level.

2. At the international level

   a) Unesco should take the initiative in organizing a Workshop for teacher educators of the region for developing curricular and instructional materials, and for considering the strategies for implementation of population education in the teacher education programmes;

   b) Unesco's documentation services may be strengthened to provide clearing house and documentation services to the countries of this region, and supply materials in population education (especially materials produced within the region);

   c) Fellowships for study abroad and consultancy services may be made available by Unesco and other international organizations to train key personnel in organizing and executing programmes in population education.

Research

Unfortunately, any population education programme must begin with a number of unanswered questions; there is much that is not known. Concurrently with the development of other aspects of the programme it is, therefore, necessary to incorporate a significant research component.

The Workshop recognized that the kinds of research which a society chooses to support at a given time must reflect the current problems and preoccupations regarding the shaping and legitimization of policies and programmes. The urgency of the Asian demands cannot await the luxury of "pure" research. Rather, research has to be essentially action-oriented and relevant to the solution of practical problems. Within this context, a research programme for population education must place greatest emphasis on the immediate problems of determining the most appropriate content for school use, and assessing how and when to most effectively and efficiently convey that content. Among the numerous possibilities for research, priorities must be carefully established according to each country's needs and resources.

No attempt is made to include in this discussion those problems which are not unique to population education. Thus, studies should also be made to ascertain preferred techniques for training teachers on population matters, preferred classroom teaching methods for conveying a given population objective, and the advantages and disadvantages of two or more different population education units for conveying the same objectives. Also, child-centred research should be strongly encouraged, both for its desirability as a learning device and for its potential research value. Problems of this nature, however, occur with any new (or old) school topic.

1. Studies to determine population education content

   a) Probably the greatest contribution to population education would be a series of studies aimed at trying to understand in depth (in any given culture) why people make their demographic decisions. It is also important to see if people recognize the relationships among these various factors;

   b) The life aspirations which parents hold for their children, or which children hold for themselves, are highly significant for moulding the content of a population education programme. A basic "message" of such a programme is that family size is related to the quality of one's life. The latter, however, is a function of factors which differ from one culture to another (these factors may also differ from one individual to another, but cultural patterns are more significant for a school programme). A school programme should be designed to express the advantages and disadvantages of families of different size in terms of the variables which a particular culture considers most relevant to its life aspirations.

   c) Nevertheless, it is assumed that economic motives do play a very important role in most people's lives. A series of studies should try to understand precisely how village economies work and how people's perceptions of economic variables influence their present demographic decisions.

d) In some countries, socio-economic development has proceeded despite the existence of rapid population growth. Differential factors responsible for this situation should be investigated to determine whether they have implications for a school programme;

e) The above suggestions are for 'passive' studies - to ascertain present knowledge or attitudes. Since the purpose of a population programme includes the changing of present perceptions of one's demographic situation, a more 'active' type of research would also be an extremely useful input to a school programme. Thus, one may begin by ascertaining a people's present perception of their demographic situation, then help them to change that perception. As they begin to recognize some of the previously unperceived relationships among the demographic factors in their lives, their own solutions should begin to emerge. As these solutions would clearly be relevant to the culture, they may be considered as the 'best' solutions for that culture's perception of its population problems. The process by which people come to recognize and find solutions for, their own population problem could then form the basis for a school programme;

f) In every school syllabus, there are presently elements of population education. One problem is that no attempt has been made to systematize these elements, and to organize them into a coherent pattern. Prior to developing additional population materials, therefore, existing syllabuses and textbooks should be analyzed in depth to ascertain their population content;

g) Along a similar vein, children are presently exposed to many population programmes which are really intended for their parents. The accidental impact of such adult programmes on children should be investigated, since they may be playing a major role in informal education of the children.

2. Studies to determine how best to convey population education content

A very different area for research related to population education concerns the choice of topics themselves. Again, several different types of studies can be suggested.

a) Viewing population education as a series of topics - and eventually as a series of curriculum units - it is necessary to determine which topics (or units) should be introduced at which level in the system; Criteria for such decisions could derive from the complexity of the content, the maturity of the students at different ages, and the logical relationships among the topics themselves;

b) Where opposition to parts of the programme may be strong, research studies could ascertain who objects to what, and why.

Action research could then be conducted to try to determine how best to overcome existing or expected opposition;

c) In view of the important differences between sex education and population education, the contents of each programme could be delineated and separated, in terms relevant to the individual country situations.

3. Regional research programme

The Workshop recognized that certain of the research studies suggested above were of such a nature that the results of studies from one country could probably be applicable elsewhere. It was recommended, therefore, that a research and co-ordination unit be established at the Unesco Regional Office to initiate a regional research programme with the following major tasks:

a) A comparative study of the factors leading to demographic decision-making in the region;

b) A review of existing population education programmes in the region to provide useful information to individual countries;

c) A study of the concepts that are included in population education and sex education;

d) A long-term plan for comparative studies of the research done in individual countries and for co-ordinating research activities.

Note: This section on research is by no means exhaustive. The most important point to stress is that research should be considered an integral part of any population education programme. Given the importance of the objectives of the programme, it is imperative to determine how best to achieve them - and then to know what the success or failure is, and why.

CHAPTER FOUR

SUMMARY OF MAJOR CONCLUSIONS

(Indicated in the context of their generation at the Workshop. Conclusions with implications for international contributions and co-operation are italicized).

A. Definition and objectives of population education

1. The Workshop decided on the following definition of population education:

   Population education is an educational programme which provides for a study of the population situation in the family, community, nation and world with the purpose of developing in the students rational and responsible attitudes and behaviour toward that situation;

2. and concluded that population education is not sex education.

3. It further concluded that the elements - determinants, demography and the consequences - would form the core of population education;

4. and that the general objectives of population education may be summarized as being to assist the pupil to acquire the relevant levels of cognitive operation in:

   a) basic demographic concepts, processes and methodologies;

   b) static and dynamic description of the population situation at the micro- and macro-levels;

   c) the determinants of population growth;

   d) the consequences of population growth;

   e) the human reproductive process as a basis for understanding human fertility;

   f) the national and international population policies and programmes;

   g) to develop rational and responsible attitudes and behaviour towards family size and national population programmes.

5. The Workshop noted that knowledge of population policies and programmes is not intended to imply that the detailed offerings of a local family planning clinic be included in the programme. Rather, the

demographic effects of the clinic's presence should be the emphasis of the school study. Similarly, on the national level, attention should be given to the impact of family planning (as well as other) programmes on the reduction of the birth rate;

6. and decided that, since there is no real proof of the relevance of any of the listed topics toward the achievement of population education's goals, it may be advisable to exclude - either temporarily or permanently - any topics which may endanger the programme's very acceptance and implementation.

B. Strategies for establishing a population education programme

1. The Workshop appreciated that there were several different sets of significant strategies, such as for convincing decision-makers of the need; for planning and co-ordinating various elements of the programme; for incorporating population education content into existing curricula; for developing the non-curricular aspects of the programme, such as teacher education and research.

2. and recognized the significance of convincing decision-makers of the importance and urgency of introducing population education in the schools of Asia.

3. The Workshop felt that all participants had a special and personal responsibility to reach decision-makers and attempt to convince them. Other suggestions included -

   a) *seminars, and visits by expert teams initiated by Unesco and other international organizations to the member countries, specifically targeted on decision-makers, emphasizing the importance and urgency of the population problem - and the need for, and benefits from, a population education programme.*

   b) *literature on population problems and population education to be made available to decision-makers by Unesco and other international organizations. This may take the form of specially prepared kits, aimed at particular decision-makers, and containing relevant elements such as explanations, case studies, curricular materials.*

   c) *international and regional seminars, and visits by the decision-makers, particularly from the Ministries of Education, to countries undertaking population education programmes, initiated by Unesco and other international organizations.*

   d) generation of public opinion in favour of population education in the member countries by personal and other contacts with influence agents such as legislative and parliamentary personnel; women's associations and other social and cultural organizations; parents/teachers associations; newspapers, radio, and other mass media agencies.

e) providing decision-makers with a systematic and realistic plan for implementation, and systematic evaluatory evidence of progress if population education is permitted on a pilot scale.

4. The Workshop also concluded that there were many dimensions that needed planning and integrating if a population education programme were to be implemented in the member countries. Among the processes that would need close consideration and co-ordination are -

   a) making the plan;

   b) communicating it to the various action agencies such as the teachers, teacher educators, administrators, supervisors, principals;

   c) implementing it and controlling and guiding it in the schools and teacher-education institutions, which would involve new logistic patterns and the provision of human, material, and time and space resources;

   d) evaluating it systematically and providing feedback and interpretation for the improvement of the plan and the programme;

   e) initiating needed action-research.

5. The Workshop recognized that there are a number of different ways of adding population elements to existing school curricula. Some require considerable tampering with the present programme; others do not. When complete programmes of population education are finally prepared, it is very likely that some combination of strategies will be employed. Among the available strategies were -

   a) single course on population education;

   b) unit in a subject area;

   c) permeation;

   d) through the teacher.

6. The Workshop concluded that while the first introduction of population education at either the primary or the secondary levels had corresponding advantages and disadvantages, in terms of the needs of the region the priority school level for introducing population education was the upper primary/elementary.

7. The Workshop emphasized the high priority that needs to be given to the adequate in- and pre-service preparation of teachers if the implementation of a population education programme is to succeed;

8. and recommended that the following actions be taken -

a) at the national level:

i) population education should become an integral part of teacher education programmes at all levels, either as a separate course or by incorporating its elements in the existing curricula;

ii) attempts should be made as soon as possible to organize workshops, seminars, discussions and lectures on population education for teacher educators and teachers under training;

iii) workshops should also be organized to develop curriculum materials in various forms (curriculum guides, resource books, etc.) for teacher education;

iv) in-service training programmes for population education should be organized. Follow-up programmes may also be taken to evaluate effectiveness systematically;

v) *national governments (and other agencies) should make available fellowship for studies abroad for teacher educators, in this field, and thus build a nucleus for leadership at the teacher educator level.*

b) at the international level:

vi) *Unesco should take the initiative in organizing a workshop for teacher educators of the region for*

(a) developing curricular and instructional materials;

(b) considering the strategies for implementation of population education in the teacher education programmes.

vii) *Unesco's documentation services may be strengthened to provide clearing house and documentation services to the countries of this region, and supply materials in population education (especially materials produced within the region).*

viii) *Fellowships for study abroad and consultancy services may be made available by Unesco and other international organizations to train key personnel in organizing and executing programmes in population education.*

9. The Workshop recognized that it was most important to stress that research should be considered an integral part of any population education programme. Given the importance of the objectives of the programme, it was imperative to determine how best to achieve them - and then to know what the success and failure was, and why. The urgency of the Asian demands cannot await the luxury of 'pure' research. Rather research has to be 'action-oriented'. Among the numerous possibilities for research, priorities must be carefully established according to each country's needs and resources.

Summary of major conclusions

10. The Workshop indicated that the following classes of research had pervasive importance -

    a) studies to determine population education content;

    b) studies to determine how best to convey population education content.

11. The Workshop concluded *that certain of the research studies suggested were of such a nature that the results of studies from one country could probably be applicable elsewhere.*

12. and recommended therefore *that a research and co-ordination unit be established at the Unesco Regional Office for Education in Asia with the following major tasks:*

    a) a comparative study of the factors leading to demographic decision-making in the region;

    b) a review of existing population education programmes in the region to provide useful information to individual countries;

    c) a study of the concepts that are included in population education and sex education;

    d) a long-term plan for comparative studies of the research done in individual countries and for co-ordinating research activities.

13. The Workshop urged *Unesco in particular to strengthen and augment its regional infra-structure to assist national activities in population education through such means as:*

    a) a Regional Documentation and Audio-visual Centre for Population Education;

    b) a Standing Regional Working Group to assist and survey existing and developing activities;

    c) a Mobile resource team to assist in teacher training and to contact decision makers;

    d) a Source Book in population education;

    and an exchange and fellowship programme with -

    a) Inter-country Exchanges of key personnel;

    b) Travel Fellowships by groups for study of projects.

APPENDIX A

CONTENT OBJECTIVES ANALYSIS

Diverse disciplines and curriculum areas, such as sociology, economics, biology, demography, family life education, and health studies have contributed data and concepts to population education. Identifying the content to be taught under population education in some degree of detail was a necessary task before translation into instructional materials was made.

This exercise of content analysis followed the development of general objectives and a transition stage at which content topics, implicit in the general objectives, were approximately isolated.

For the purpose of the analysis and for the development of instructional material, the Workshop made a working assumption that population education would be introduced into school curricula through the integration of population education content with the content of existing curricula disciplines, while making no implication that this strategy was necessarily the best one for the Asian Region. A discussion of this aspect appears in the chapter on Strategies for Establishing a Population Education Programme, on page 23.

The Workshop then viewed the content of population education in terms of the broad school discipline grouping, social sciences and natural sciences, using the content topics isolated from the general objectives, and the following preliminary content analyses available to the Workshop in the working documents. These content analyses reflect two different techniques of defining the content.

APPENDIX A

CONTENT ANALYSES - SOCIAL SCIENCES

Primary Level

(5 and 6 years' duration - Age-group 6-12 years)

I. Area - Population Growth

The whole content in this area is divided into five major units: 1) Processes of population growth. 2) Distribution of population. 3) Present population situation and the characteristics of population. 4) Past and future trends of factors influencing population growth. The units are not mutually exclusive.

1. Population increases due to births and decreases due to deaths.	1. Some facts about the population of village, city, state and the country.
2. Population increase leads to certain problems in the neighbourhood cities and the state.	2. Approximate increase in population of the village, city and state in the last ten years.
	3. Overcrowding in buses, schools; shortage of supply of food-stuffs, rise in prices of articles of daily use.

II. Area - Economic Development and Population

This area, for the sake of convenience, can be divided into three major units: 1) Basic necessities and population growth. 2) Standard of living and population growth. 3) Economic development and population growth.

1. Food, shelter and clothing are the basic necessities of life. All human beings need them.	1. Identification of basic necessities - food, shelter, clothing.
	2. Family as basic organizational unit through which the needs are met.
	3. Larger families and the difficulties in providing these needs in sufficient quantities. Food shortage, accommodation problem. Want of comforts.

III. Area - Social Development and Population Growth

1. Rapid population growth leads to several social problems.	1. Some social problems - elemental idea of problems -- like over-crowding. 2. Division of property in families, litigation, marriage of girls. 3. Shortage of amenities - water supply, medical facilities.

IV. Area - Health, Nutrition and Population Growth

Health

1. Good health is desirable for every individual.	1. Importance of good health. Its meaning.
2. The individual is responsible for the status of his own health.	2. Need for developing healthy habits - cleanliness, sanitation.
3. Large families with lack of facilities suffer from bad health.	3. Need for good food, pure water, fresh air, rest - exercise, etc.
4. Insanitary conditions lead to the spread of communicable diseases.	4. Factors responsible for bad health - personal hygiene, lack of nutritional food. 5. Life in large families living in unsanitary conditions, victim to common diseases. Communicable diseases. Preventive measures.

Nutrition

1. Food is essential for energy, growth and vitality and it protects one against diseases.	1. Basic food groups - nutrients necessary for energy and growth.
2. Inclusion of basic food groups in daily diet ensures good nutrition.	2. Diseases caused by deficiency in nutrient intake. 3. Hygiene of food - preparation, serving, storage. Guarding against wastage. 4. Basic principles of meal planning - meal planning for different seasons balanced diet.

Content objectives analysis

Lower Secondary Level

(3 years' duration - Age-group 13-15 years)

I. Area - Population Growth

1. Population grows due to the gap between birth-rate and death-rate.	1. Meaning of birth-rate, death-rate infant-mortality-rate and expectation of life. Demographic definitions - fertility, mortality. Measures of population increase.
2. The widening gap between birth-rate and death-rate results in accelerated population growth unless steps are taken to reduce birth-rate.	2. Inter-relationship between birth-rate, death-rate, migration and growth-rate. (Demographic concepts). Calculation of birth-rate, death-rate and growth-rate (simple calculations).
3. Our country is mainly agricultural and 80% of her population lives in villages.	3. Facts and figures about population in our country - village - towns, density of population in rural and urban areas, role of migration - results.
4. Differences in rural and urban conditions have material significance for problems of population growth.	4. Distribution of population : sex, age, composition.
5. The trends of birth- and death-rates of our country are shared by most of the developing countries.	5. Conditions in rural and urban areas. Health facilities, educational and transport facilities.
	6. Facts about population size, density, growth-rate, birth-rate and expectation of life in a few important countries of the world : United States of America, Union of Soviet Socialist Republics, Japan, France and others.
	7. Contrast between developed and developing countries and the place of our country in world perspective.

II. Area - Economic Development and Population Growth

Basic necessities

1. Food, shelter and clothing are basic necessities of life.	1. Per-capita requirement of basic necessities - available per-capita.

Basic necessities (cont'd)

	Malnutrition and resultant poor health. (This is to be done in respect of the country).
2. Availability of these basic necessities varies from place to place. (Country to country).	2. Rapid population growth - its results - lack of availability basic necessities, high prices.
3. Rapid increase in population leads to inadequate supply of goods and rise in prices.	3. Small family and its relation to standard of living. Some idea of comfortable living.
4. The standard of living is the sum total of amenities and facilities a man enjoys in a community/ country.	4. The relationship between population and standard of living. The examples of India and China as the most populous countries of the world. Effect on standard of living.
5. The standard of living of the people in a country depends on the total national income and population of that country.	5. Standard of living in some advanced and developing countries - some examples.
6. Standard of living differs from country to country depending on the stage of economic development.	6. Some national income comparisons, nutritional requirements. Indequate nutritional food in countries with low per capita income.
7. Poor standard of living effects adversely the consumption level of people with reference to food, clothing, education, medication facilities etc.	

III. Area - Social Development and Population Growth

Education

1. Rapid population growth leads to several social problems.	1. Shortage of schools - trained teachers - equipment - libraries - result poor education.
2. Illiteracy tends to increase in spite of the increase in percentage of literacy.	2. Rapid growth in numbers of younger age group - large number of children not attending school - lack of facilities - economic reasons - wastage and stagnation - increase in number of illiterates.

Housing, transport, social services

3. Growth of population leads to migration from rural areas to urban areas (cities).	3. Rush for cities, rise of slums, insanitary conditions. Lack of housing facilities.
4. Rapid growth of population gives rise to transport problems.	4. Difficulties in travel - overcrowding in buses, trains, inadequate roads - overcrowding in places of recreation - social conflicts - deprivations.
5. With rapid growth the social services usually lag behind.	5. Availability of trained doctors, nurses, absence of welfare schemes.

IV. Area - Health, Nutrition and Population Growth

Health

1. Positive health averts diseases.	1. Common diseases, communicable diseases, preventive measures. Diseases as danger to national progress.
2. Health facilities tend to become inadequate with rapid growth of population.	2. Available health facilities - in town, State and country inadequate hospitals - health schemes of the country. Consequences of non-availability of health facilities - epidemics.
3. Small families in comparison to large families help in promoting better standard of living.	3. Family size and the health of the members - better availability of food, accommodation, medical facilities and other amenities.
4. Malnutrition and under-nutrition lead to bad health and diseases.	4. Meaning of malnutrition and under-nutrition - results - poor health: diseases, low vitality - poor performance - low yield - low production - poor economic growth, (vicious circle).
5. Size of family is an important factor in determining the nutritional status of the members of the family.	5. Family size and its impact on family budget, on food. Perceptive food consumption, quality and quantity of food. Comparisons in developing and developed countries.

Higher Secondary Level

(3 years' duration - Age-group 16 to 18 years)

1. Population grows due to the gap between birth-rate and death-rate.	1. More complex demographic concepts and definitions e.g. population pyramid, life-table. How population figures are collected, local surveys, the census, its uses.
2. Incidence of epidemics, famines, wars etc., raise death-rate and reduce birth-rate.	2. Broad review of incidence of epidemics and other calamities in our country since 1901 (world examples to be given) National and world survey of population growth.
3. Death-rate is decreased due to the application of new knowledge in medicine and public health.	3. Broad description of health services - the approach of new research in medicine and public health, its results in lowering death-rate - some facts from developing and developed countries.
4. Nutritional status, personal and environmental hygiene, traditional beliefs and economic growth (income level) effect birth- and death-rates.	4. The Demographic Transition - meaning, the factors and the processes - status of various countries with regard to demographic transition. The new demographic change in the world. The future trends.
5. Several historical and economic factors help in bringing about demographic transition.	5. Historical - population figures, history of growth of population in Asian countries - some typical examples.
6. Family size plays a vital role in regulating population growth.	6. Movement for popularizing small family norm. Family planning policies and programmes at the local and national level. The role of international agencies.

II. Area - Economic Development and Population

1. Increase in production is nullified by rapid increase in population.	1. Rate of growth of population and rate of growth of production (agricultural and industrial), comparison - results - facts and figures about our country and other developing countries.

Content objectives analysis

II. Area - Economic Development and Population (Cont'd)

	/Five-Year Plans - attempts to increase production and measures to decrease population growth - description and critical analysis/.
2. Rapid growth of population adversely affects the economic life of a country.	2. Shrinking share of natural resources - land, soil, water, minerals etc. fragmention of lands.
Standard of living	
3. The growth of population has close relationship with the standard of living of a people.	3. More details about standard of living and growth of population, with examples from both developing and developed countries. Causes of low standard of living of a people - suitable examples.
4. Low standard of living leads to low production resulting in lower standard of living.	4. Increase in population - rise in demand - effect on prices, low standard of living.
5. Standard of living is raised by increased production and population control.	5. Poor standard of living - effect on productivity - lesser production - poorer standard of living.
6. Production and population are both controllable by man and his knowhow.	6. The other argument. Increase in population - more demand for goods - impetus to more productivity - more manpower utilization, better use of natural resources - rise in standard of living.
7. The effective ways to check the growth of population and raise the standard of living depend on people and how they assume responsibility to meet the challenge.	7. Efforts in advanced countries for raising the standard of living. Some examples of plans and programmes.
	8. Some recent efforts made by the Government and developing countries. Planned economic - development - industrialization - improved methods of agriculture - role of young men and women.
	9. The role of international agencies in raising the standard of living in developing areas.

III. Area - Social Development and Population Growth

Education	
1. Illiteracy is detrimental to country's progress and democratic living.	1. Increasing literacy problems, ignorance danger to democracy - superstitious beliefs and traditional social customs.
2. Lack of proper training facilities often result in low efficiency of manpower.	2. Unskilled labour - poor training, importance of trained manpower both in agriculture and industry, deterioration in the quality of human resources - poor productivity - unemployment - lowering of morals.
Anti-social practices	
3. Goods and services are rendered inadequate by rapid growth of population, ultimately lead to evil social practices.	3. Scarcity of essential commodities, anti-social practices e.g. black-marketing - adulteration, cheating, poor ethical behaviour.
Ecology	
4. Concentration and overcrowding in cities, pollution of air, water, land and environment.	4. Ecological considerations, imbalance in nature, its effects, danger to the health of the community, elimination of natural surroundings, loss of aesthetic tastes.
Unemployment	
5. Frustrations caused by unemployment generate social tensions and evil social practices.	5. Causes of unemployment - its effects, social tensions - crimes, unrest, anti-social activities. The present unemployment situation in developing countries. Remedies for removal of unemployment - more jobs - lesser population.
Social pressures	
6. Social pressures on large families often result in indebtedness, litigation - lower standard of living.	6. Social customs and traditional beliefs, superstitions (value of children, specially sons) early marriage - result large families. Indebtedness - litigation on division of property - fragmentation of land. Poor care of children in large families with low income.

Content objectives analysis

Status of women

7. Equal status and individual freedom of women can help check population growth.	7. Status of women - in developed and in developing countries. Need for women's education - influence of educated women on their own families and others. Better decision-making.
8. Gainful employment of women has an impact on standard of living and helps in tackling population problem.	8. Advantages of employment of women - late marriages - economic independence - better standard of living - influence on family - control on family size.

IV. Area - Health and Nutrition and Population Growth

No new concepts are to be taken up at the upper secondary stage. Some more information with regard to health programme of WHO may be given. Areas V and VI not detailed here.

CONTENT ANALYSES - NATURAL SCIENCES

As a technique for looking at the many variables involved in a study of population, a composite country, Kalpitha, was invented to represent some of the real and significant population factors at work in the countries of the Region. An attempt was made, in the Main Working Document of the Workshop, to present this invented country's population situation as realistically as possible.

The Content Analysis for the Natural Sciences was made specifically for this imaginary composite country, Kalpitha, to emphasize the necessity for developing curricula specific and indigenous to a particular country.

This analysis is based on the family welfare approach. Four 'leading concepts' A1, A2, A3, and A4, are listed. Each leading concept is then divided into a set of 'main ideas' B1, B2, B3 ....

A. Leading concepts

A1. Family size has an important influence upon family welfare.

A2. For the average family of Kalpitha today, a small family size would improve (the chances of attaining better) family welfare.

A3. Fertility control is therefore being widely advocated in Kalpitha for the improvement of family welfare.

A4. The development of natural resources is essential for the improvement of family welfare in Kalpitha.

B. The main ideas under each of the leading concepts

Leading concept A 1.	Family size has an important influence upon family welfare.
Main idea A1/B1.	(Before discussing the influence of family size upon family welfare) it would be useful to clarify the terms which are to be used in the discussion. These terms include 'family', 'family size', and 'family welfare'.
Main idea A1/B2.	In the average family in Kalpitha (and in many other countries) today, family welfare is inadequate.
Main idea A1/B3.	The inadequacy of family welfare in Kalpitha today arises partly from family size.
Leading concept A 2.	For the average family of Kalpitha today, a small family size would improve the chances of attaining better family welfare.
Main idea A2/B1.	The inadequacy of family welfare in Kalpitha today arises partly from family size.
Main idea A2/B2.	A small family is one in which the family size (the number of children) is two or three. Anything more than three children is a 'large' family.
Main idea A2/B3.	There is a growing tendency among the people of Kalpitha to favour the idea of a small family.
Leading concept A 3.	Fertility control is therefore being widely advocated in Kalpitha for the improvement of family welfare.
Main idea A3/B1.	Fertility control in the present context denotes the voluntary control of birth-rate.
Main idea A3/B2.	A fall in fertility is supposed to be stimulated by a number of complex and interrelated factors. These include socio-economic factors (such as education, fertility control practices, and average age of marriage), and biological factors (such as nutrition).
Main idea A3/B3.	Fertility control by limitation of births is the most readily available method for controlling family size.
Leading concept A 4.	The development of natural resources, conventional and novel, is essential for the improvement of family welfare.
Main idea A4/B1.	Food resources, conventional and novel, must be developed if large-scale undernutrition and mul- nutrition are to be avoided.

Main idea A 4/B2. Power resources, conventional and novel, must be developed to a great extent if acceptable standards of living are to be achieved.

Main idea A 4/B3. Mineral resources, conventional and novel, must be developed to a great extent if acceptable standards of living are to be achieved.

Each of the four leading concepts (A1 to A4) and some of the main ideas (B group) thereunder have, in this analysis, been broken down into a series of ideas (C group). Each sequence, consisting of leading concept (A), main idea (B), idea (C), is meant to form a logical series which flows on to the next sequence.

Leading concept A1. Family size has an important influence upon family welfare.

Main idea A1/B1. (Before discussing the influence of family size upon family welfare) it would be useful to clarify the terms which are to be used in the discussion. These terms include 'family', 'family size' and 'family welfare'.

Idea A1/B1/C1.

1.0 The family

1.1 The family is the basic unit of society.

1.2 We can speak of two sorts of family - nuclear and non-nuclear.

The nuclear family is a family consisting of father, mother and (unmarried) children. The non-nuclear family is a family consisting of two or more nuclear families. (The non-nuclear family is also called the joint family or the extended family).

1.3 Both nuclear and non-nuclear types of family are found in Kalpitha today.

2.0 The term 'family size' denotes the number of living children in the family.

3.0 The term 'family welfare' denotes the extent to which the members of the family receive fulfilment of basic human needs.

3.1 Basic human needs include food, housing, health, education, recreation, security, and higher needs and comforts.

Main idea A1/B2. In the average family in Kalpitha (and in many other countries) today, family welfare is inadequate.

Idea A1/B2/C1. The average family in Kalpitha (and in many other countries) today does not get enough food.

1.0 The food consumption of a population is studied by nutritional surveys.

2.0 The majority of persons in Kalpitha (and in many other countries) today are said to be undernourished.

2.1 The calorie intake per person per day in Kalpitha (and in many other countries) is said to be low.

2.2 Many persons in Kalpitha (and in many other countries) suffer from hunger. Some die of starvation.

3.0 The majority of persons in Kalpitha (and in many other countries) are said to be malnourished.

3.1 The intake of protein per person per day in Kalpitha (and in many other countries) is said to be low.

3.2 The intake of vitamins per person per day in Kalpitha (and in many other countries) is said to be low.

3.3 The intake of mineral substances per person per day in Kalpitha (and in many other countries) is said to be low.

3.4 There is an undesirably high incidence of clinical malnutrition (protein deficiency, vitamin deficiencies) in Kalpitha (and in many other countries).

Idea A1/B2/C2. The average family in Kalpitha (and in many other countries) today does not enjoy adequate housing.

Idea A1/B2/C3. The average family in Kalpitha (and in many other countries) today is sub-standard in health.

1.0 As measured by the ratio doctors: population, or hospital beds: population, the health services of Kalpitha are sub-standard.

1.1 Health is a state of well-being.

1.11 Health is not merely the absence of disease.

1.12 The well-being of health includes physical well-being as well as mental well-being.

1.2 Every person should have the chance of living a healthy life.

Content objectives analysis

1.3 The maintenance and improvement of the health of the people of a country requires (among other things) medical services.

1.31 A country's medical services consist of public health services and curative services.

1.311 The public health services seek to prevent the preventable diseases.

1.3111 The public health services include a school health service.

1.3112 The public health services include a maternal and child health service.

1.3113 The public health services include environmental sanitation.

1.3114 The public health services include several special campaigns against certain diseases.

1.312 The curative services seek to cure the curable diseases.

1.4 A useful measure of the health services in a country is the ratio doctors : population, or hospital beds : population.

1.41 A population consists of all the organisms of a given kind which live in a given space during a given time.

1.411 All the people of a country are the human population of the country.

1.42 It is important for a country to know how many people there are.

1.421 The counting of a country's human population is called a census. A census is usually done once in ten years.

1.43 The density of population is the number of organisms in the population per unit area (or volume) of space.

1.431 Population density is high in cities and towns.

1.432 Most of the people in Kalpitha, however, are rural.

1.44 The population of Kalpitha, and of the world is growing rapidly.

1.45 A measured by the ratio doctors : population, or hospital beds : population, the health services in Kalpitha are substandard.

2.0 A great increase in the health services in Kalpitha will be necessary in the coming years even if the aim is no higher than that of maintaining them at their present unsatisfactory level.

2.1 The population of Kalpitha is growing rapidly. (1.44 above).

2.2 The growth of population is determined by birth-rate and immigration on the one hand and mortality rate and emigration on the other. These are called the determiners of population growth.

2.21 Countries keep records of births, deaths, immigration, marriages, illness and other basic data. Summaries of such records are called vital statistics.

2.22 Births and immigration tend to increase the population.

2.221 The number of births is usually expressed as the annual birth-rate, which is the number of births during the year for every 1,000 persons in the population during the year.

2.23 Deaths and emigration tend to decrease the population.

2.231 The number of deaths is usually expressed as the annual death-rate (mortality rate), which is the number of deaths during the year for every 1,000 persons in the population during the year.

2.24 The actual growth in size of the population is found by subtracting the decrease of persons (by deaths and by emigration) from the increase in persons (by births and by immigration).

2.241 The actual growth in size of the population during a year is usually expressed as a percentage of the size of the population during the year.

2.242 The difference between the birth-rate and the death-rate is called the rate of natural increase of the population.

2.25 Population growth is of the 'compound' or 'geometric' type of increase.

2.251 If r% is the growth rate, the population would double itself in 70/r years (approximately).

2.3 Reasonable guesses can be made about what the size of the population of a country is likely to be in the coming years.

2.4 Reasonable guesses about the size of Kalpitha's population

in the coming years suggest that a great increase in the health services in Kalpitha will be necessary even if the aim is no higher than that of maintaining them at their present unsatisfactory level.

2.5 The determiners of population growth are affected by environmental factors. These environmental factors can be classified into two main groups - biotic factors and abiotic factors.

2.51 Biotic factors are usually density-dependent, while abiotic factors tend to be density-independent.

2.511 Biotic factors may be classified into:

intraspecific competition
interspecific competition
herbivore-plant relations
predator-prey and parasite-host relations.

2.6 The chief reason for the rapid increase in the population of Kalpitha (and of the world) is a fall in the death-rate without a corresponding fall in the birth-rate.

2.61 The fall in death-rate is mainly due to the medical services - public health services as well as curative services. (1.3 above).

2.611 An important aspect of public health work which has reduced the death-rate is environmental sanitation. (1.3113 above).

2.612 The principal materials which the medical services have used in reducing the death-rate are chemotherapeutic substances, anti-biotics, insecticides, vaccines and sera.

2.62 The saving of the lives of persons who otherwise might have died young has been supposed by some to lead to genetic 'deterioration' of the human species; by others, to genetic 'improvement'.

2.621 The saving of lives of persons who otherwise might have died earlier of hereditary disease has been supposed by some to give rise to a high incidence of 'bad' genes in the population; by others, the effect is considered to be negligible.

2.7 Population fluctuations occur.

2.71 For a growing population, the growth curve may be S-shaped for an 'open' population, or bell-shaped for a 'closed' one.

2.711 It is probable that the size of the human population of Kalpitha and of the world will level off - eventually.

2.72 For an established population, the population fluctuations may be regular or irregular.

2.73 There is as yet no general theory to explain these population fluctuations.

2.731 One hypothesis which seeks to explain these population fluctuations is as follows: there is an increase in the mortality rate when the population increases. The increase in mortality rate may be immediate or delayed. A delayed response of this sort can lead to large fluctuations in population size.

2.732 Another hypothesis which seeks to explain these population fluctuations is as follows: during the rising phase of a population cycle, genetic variation has full play and natural selection is minimal. Then, an environmental change sets in, and natural selection has full play. As a result, the population crashes.

2.74 The amount of fluctuation in the size of populations of wild animals is very small when account is taken of the potential amount of fluctuations.

2.741 Such stability in the size of populations of wild animals must be due to density-dependent factors, affecting fertility rate or mortality rate.

2.75 Populations have become extinct.

2.751 Several species of animals and plants are in danger of becoming extinct as a result of human activity.

2.8 Each ecological niche has its characteristic populations of organisms.

2.81 Competition is inevitable between two populations of organisms occupying the same ecological niche.

2.811 At one end of the scale, competition leads to a balanced situation in which both kinds of organisms live side by side. At the other end of the scale, it leads to extinction of one or both kinds.

2.812 Several species of animals and plants are in danger of extinction as a result of human activity.

2.8121 Human activities which tend to extinguish other species of living animals and plants include the encroachment of natural habitants, pollution of land, water and air, and other ways of upsetting the balances of nature.

2.82 The destruction of the balance of nature in various ecological niches as a result of human activity may have dangerous and unintended effects upon human welfare.

2.821 Human encroachment into forest lands, which may partly be due to population pressure, may entail danger to the water resources of the country.

2.822 Pollution of land, water and air by the waste products of human activity and industrial chemical substances is a threat to the balance of nature in various ecological niches

2.9 Natural populations are limited. The individual members are selected for survival by the process called natural selection.

2.91 In prehistoric times, natural selection is believed to have been the main process in the evolution of mankind. This phase of evolution was slow.

2.10 The concept of an optimal size of population takes several factors into account.

2.10.1 One of the factors which is to be taken into account in considering the question of optimal size of a population is the welfare of the individual members of the population and of the community.

2.10.2 Another factor which might be taken into account in considering the question of optimal population size is the production of variation in the individual members of the population for 'improvement' of the population by the process of selection.

3.0 Useful measures of the health of the people of a country can be found in the country's vital statistics, especially the death-rate, infant mortality rate, maternal mortality rate, and average length of life.

3.1 Vital statistics. Countries, including Kalpitha, keep records of the number of people (population), marriages, births, deaths, illnesses, migration, ratio of doctors: population, and other basic data. Summaries of such records are called vital statistics. (2.21 above)

3.2 Death-rate. The number of deaths is usually expressed

as the death-rate. The death-rate is the number of deaths in the course of a year for every 1,000 persons in the population during the year. (2.23 above)

3.21 The death-rate has fallen remarkably in Kalpitha and in the world in recent years. (2.6 above)

3.22 The main factor that has recently reduced the death-rate in Kalpitha and in the world is the use, by the medical services, of environmental sanitation, modern drugs, insecticides, and vaccines and sera. (2.61 above)

3.23 If we use death-rate above as the measure of the health of the people of Kalpitha, we conclude that Kalpitha passes well by international standards.

3.3 Infant health

3.31 An infant is a child under one year of age.

3.32 The infant mortality rate for a given year is the number of infants who died during the year out of every 1,000 infants who were born during the same year.

3.33 Infant mortality is preventable to a considerable extent. The infant mortality rate is therefore a useful measure of the achievement of health by a population.

3.34 As judged by the infant mortality rate, Kalpitha is substandard in its health achievement.

3.4 Maternal health

3.41 The maternal mortality rate for a given year is the number of mothers who died at childbirth during the year out of every 1,000 mothers who were at childbirth during the same year.

3.42 Maternal mortality is preventable to a considerable extent. The maternal mortality rate is therefore a useful measure of the achievement of health by a population.

3.43 As judged by the maternal mortality rate, Kalpitha is substandard in its health achievement.

3.5 Average length of life

3.51 The average length of life for a given year is calculated by adding up the ages of all the persons who died during the year and dividing the sum by the total number of persons who died during the year.

3.52 The average length of life in Kalpitha and the world has been increasing.

3.53 As judged by the average length of life, Kalpitha is sub-standard in its health achievement.

4.0 Pollution of land, water and air by the waste products of human activity and industrial chemical substances is a threat to the health of human populations.

Idea A1/B2/C4. The average family in Kalpitha today does not enjoy adequate educational facilities.

Idea A1/B2/C5. The average family in Kalpitha today does not enjoy adequate recreational facilities.

Idea A1/B2/C6. The average family in Kalpitha today does not enjoy adequate social security.

Idea A1/B2/C7. The average family in Kalpitha today does not have much opportunity to fulfil higher needs and comforts.

Main idea A1/B3. The inadequacy of family welfare in Kalpitha today arises partly from family size.

Idea A1/B3/C1.

1.0 Family size has a determining effect on the growth of a country's population and therefore on the country's health services.

1.1 An important factor in predicting the future population in a country can be stated to be the average family size (the average number of children in a nuclear family).

1.2 Reasonable guesses can be made about the influence of family size upon the future population of the country. Such estimates should take the following factors primarily into account:

i) Typical family size (that is, the average number of children in a family).

ii) The proportion of women who become mothers.

iii) The rate at which people die, particularly at ages below the childbearing years.

iv) The length of a generation.

v) Migration, if this is noteworthy in extent.

Idea A1/B3/C2. Family welfare in Kalpitha depends partly upon Kalpitha's health services.

Since these health services are related to family

size, family size in Kalpitha has a determining effect upon family welfare.

Idea A1/B3/C3. A smaller family size is associated with a lower infant mortality and a lower incidence of illness in infants. Family size therefore has an important influence on family welfare as judged by the safety of infants.

Idea A1/B3/C4. A smaller family size is associated with a lower maternal mortality and a safer childbirth. Family size therefore has an important influence on family welfare as judged by the safety of mothers.

Idea A1/B3/C5. As family size has an influence on mortality (especially of infants and mothers) and on the quality of the health services, we may conclude that family size has an effect on the average length of life in a country, and therefore on family welfare.

Leading concept A2. For the average family of Kalpitha today, a small family size would improve welfare.

Main idea A2/B1. The inadequacy of family welfare in Kalpitha today arises partly from family size.

Main idea A2/B2. A 'small' family is one in which the family size (the number of children) is two or three. Anything more than three children is a 'large' family.

Main idea A2/B3. There is a growing tendency among the people of Kalpitha to favour the idea of a small family.

Idea A2/B3/C1. The society in which people live has an important influence upon their average family size.

Idea A2/B3/C2. The average family size in many countries including Kalpitha has been shrinking.

Idea A2/B3/C3. People are therefore capable of exercising control over their childbearing.

Idea A2/B3/C4. People are likely to exercise control over their childbearing.

Leading concept A3. Fertility control is therefore being widely advocated in Kalpitha for the improvement of family welfare.

Main idea A3/B1. Fertility control in the present context denotes the voluntary control of birth-rate.

Content objectives analysis

Main idea A 3/B 2. A fall in fertility is supposed to be stimulated by a number of complex and interrelated factors. These include socio-economic factors (such as education, employment, and average age of marriage), cultural factors (such as education, fertility control practices, and average age of marriage), and biological factors (such as nutrition).

Main idea A 3/B 3. Fertility control by limitation of births is the most readily available method for controlling family size.

Idea A 3/B 3/C 1. There are three more or less distinct groups of methods for limitation of births: - abstinence (including abstinence associated with delayed marriage), contraception and abortion.

1. The term birth planning usually denotes fertility control by abstinence or contraception.
2. None of the present methods of contraception work perfectly.
3. Future methods of contraception may include highly specific and safe drugs or devices.

Idea A 3/B 3/C 2. National fertility control programmes have been started in many countries.
Kalpitha encourages and provides facilities for family planning.

Leading concept A 4. The development of natural resources, conventional and novel, is essential for the improvement of family welfare.

Main idea A 4/B 1. Food resources, conventional and novel, must be developed if large-scale undernutrition and malnutrition are to be avoided.

Main idea A 4/B 2. Power resources, conventional and novel, must be developed to a great extent if acceptable standards of living are to be achieved.

Main idea A 4/B 3. Mineral resources, conventional and novel, must be developed to a great extent if acceptable standards of living are to be achieved.

Three Groups (A, B, C) worked on the Social Sciences, while one chose the Natural Sciences. The three Social Sciences Groups further decided each to consider a different level in the school system, Group A dealing with the Primary Level, Group B with the Lower Secondary, and Group C with the Upper Secondary. The Natural Sciences Group considered the school levels in terms

of pupil ages; 6 years to 12 years, 13 years to 15 years, and 16 years to 18 years.

Each Group analysed an area of content preferred by its members, so that certain content areas chosen by the different Groups are coincident. The analyses are reported here without the removal of overlap.

During the analyses it was realized that different but internally consistent content analyses were indeed possible in the same general area of content, and that certain elements of content may well be argued to be at the top or bottom of a particular hierarchy of content.

The nature of certain areas of content analysed by the Groups was such that fairly close analysis was possible, while with others the analyses had to be more diffuse. The extent of detail thought necessary at this stage also varied from Group to Group.

Because of the relatively short time devoted to the exercise, the content analyses produced by the Groups are tentative, incomplete, and are not comprehensive. There are significant areas of content which were not subjected to analysis. The analyses given here are merely indicative of profitable directions of activity in this field. However, even in this preliminary exercise, the Working Groups were able to isolate confusions, cul-de-sacs, ambiguities, contradictions, situations where generalizations were not possible. The analyses also provided some indication regarding the relative levels of abstraction and difficulty in the content analysed.

The Workshop recognized that this subject matter/logical analyses was only one dimension - the cognitive - of the curriculum specifications required for the translation into instructional materials, and that other dimensions were equally important.

It should be noted that the elements of content given here may be treated at a variety of depths even though a particular school level may have been identified. This depth dimension, essential in instructional materials, is not explicit in the analyses below because the content resolution is incomplete.

When the actual instructional materials were being written at the Workshop, these preliminary analyses of the content were further resolved and these elaborated analyses were appended to, and will appear separately with, the instructional materials.

POPULATION EDUCATION CONTENT ANALYSES

Primary Level

Group A - Social Sciences

Mr. Long Inthompradith	Laos
Mr. Chew Tow Yow	Malaysia
Mrs. Mandira Pradhan	Nepal
Dr. Mukhtar Ahmad Bhatti	Pakistan
Mrs. Remedios M. Cayari	Philippines
Mrs. M. Balasingham	Colombo Plan

POPULATION EDUCATION

1.0 The Family

1.1 The family is the smallest unit of social organization:

1.1.1 Kinds of families - nuclear, extended, joint.

1.1.2 Members of the family.

1.1.3 Members of the household.

1.2 Size of the family:

1.2.1 In general, family size is large, especially in extended families.

1.2.2 Religious norms and beliefs, folklore regarding large and small families.

1.3 Relationships among members of the family:

1.3.1 Hierarchical structure.

1.3.2 Traditional family relationships.

1.3.3 Changes in family relationships.

1.3.4 Factors for harmonious family relationships (role of each member of the family; privileges and responsibilities of each member).

1.4 Facilities for family welfare:

1.4.1 Food, clothing, health, education, housing, recreation (direct and indirect relationships).

1.5 Quality of life:

1.5.1 Components of a comfortable family life (reasonable income; enough accommodation; more time for each other so that needed attention is given to the children by their parents; sufficient food; clothing).

1.5.2	Means of attaining a comfortable family (have fewer children; family size can be controlled).
2.0	The Community
2.1	Definition of the community.
2.1.1	Identifying the local community (characteristics; size; density; etc.).
2.1.2	Kind of community (urban or rural; prosperous, average, or poor, occupational structure).
2.2	Population changes in the community:
2.2.1	Causes (births, deaths, migration).
2.2.2	Socio-cultural determinants (norms; folklore; mores; beliefs regarding births, deaths, etc.)
3.0.	Implications of rapid population growth for community development
3.1	In terms of community services and resources:
3.1.1	Employment-unemployment situation.
3.1.2	Housing (overcrowding; congestion).
3.1.3	Health and sanitation (air pollution; water pollution; drainage/sewerage system etc.; medical facilities; transportation; education - school facilities, availability of teachers, overcrowding classes; recreation - provision of facilities by the community; resources - food and natural).
3.2	Social-cultural consequences:
3.2.1	Delinquency
3.2.2	Dependence on older people for sustenance.
3.2.3	Conflict of values.
3.2.4	Preponderance of teenage population.
4.0.	Adjusting public services to changing needs of growing populations
4.1	Attitude of local officials to population problems.
4.2	Population programmes of the community:
4.2.1	Variety of public services to meet the needs of increasing population (Use of mass communication media in population education; family planning programmes).
5.0	Role of the individual in transforming the community life
5.1	The individual's privileges and responsibilities.
5.2	The impact of individual behaviour on community welfare.

6.0 Planning by the community for a better life

6.1 Individual decisions in relation to future family life.

6.2 Doing one's part to help in the community population programme.

6.3 Relating one's decision to programmes of national organizations.

6,4 Need for community action in reducing population growth.

Lower Secondary

Group B - Social Sciences

Mr. Ayyub M. Ayyub	Afghanistan
Miss Lee-ming Wu	China (Rep. of)
Mrs. Anah Suhaenah Suparno	Indonesia
Dr. Abu Hamid Latif	Pakistan
Miss Teresita S. Panlilio	Philippines

POPULATION GROWTH AND SOCIO-ECONOMIC DEVELOPMENT

1.0 Understanding the population (population size in a country (stock); characteristics of the population)

1.1 Distribution of people:

1.1.1 regional

1.1.2 urban

1.1.3 rural

1.2 Density:

1.2.1 urban area.

1.2.2 rural area.

1.3 Changes in demographic situation:

1.3.1 increasing/decreasing/constancy of birth-rate.

1.3.2 increasing/decreasing death-rate.

1.3.3 migration

1.3.4 natural increases

1.4 Age structure:

1.4.1 dependency ratio.

2.0 Possible effects of rapid population growth

2.1 Economic:

2.1.1 Rapid population growth means a larger percentage of people in the younger age-group.

2.1.2 The younger-age population are consumers (like the rest of the population) but very few of them are producers.

2.1.3 Investment is the process of building up production.

2.1.4 Rapid population growth tends to decrease the quantum of savings which in turn decreases the opportunities for investment.

2.1.5 The growth of production is mainly dependent upon investment. With less investment, there will be less increase of production.

2.1.6 Per-capita income is a rough index of the economic situation of a country.

2.2 Socio-cultural:

2.2.1 Rapid population growth tends to affect the following:

Education (relationship between rapid population growth and education situation in a country; causes and determinants of poor quality of education; quality of educational cultural developments and quality of life of the people); food; health.

2.2.2 Concentration of population in urban areas which is derived partly from rapid population growth tends to increase social problems such as crime, delinquency, tensions and the like.

3.0 The national population policies and programmes

3.1 Historical background of population programmes in the country:

3.1.1 The existing bodies/agencies/institutions - their names, functions and status.

3.1.2 Significance of historical changes from the limited concept of population welfare to the global concern about population.

3.1.3 Contemporary national policy and programmes towards population.

3.1.4 The need for adjusting one's life to the changing needs of time.

3.1.5 The need for co-operation with government and non-government population programmes.

Upper Secondary

Group C - Social Sciences

Dr. Mehdi Amani	-	Iran
Mr. Ghazali bin Uda Omar	-	Malaysia
Dr. Muhammad Iqbal Zafar	-	Pakistan
Dr. Saiyut Champatong	-	Thailand
Mrs. Lam Thanh Liem	-	Viet-Nam (Rep. of)

I. DEMOGRAPHIC CONCEPTS IN POPULATION GROWTH

1.0 Description of human population

1.1 Human population:

1.1.1 Concepts of human population.

1.1.2 Distribution by age and sex.

1.1.3 Geographical distribution - the density in urban and rural areas.

1.1.4 Distribution by marital status.

1.1.5 Occupational distribution.

1.1.6 Distribution by literacy.

1.1.7 Ethnic-linguistic distribution.

1.1.8 Dependency ratio.

1.1.9 Over-population.

1.2 Determinants of population dynamics:

1.2.1 Birth (natality rate; general fertility; actual fertility; specific fertility by age; fecundability; fertility behaviour; gross and net reproduction rate).

1.2.2 Death (mortality rate; general and specific mortality rates; infant mortality; mean length of life (life expectancy); morbidity; causes of death).

1.2.3 Migration (immigration; emigration; in-migration; out-migration; rural exodus; urbanization).

1.3 Concepts of population growth:

1.3.1 Absolute rate: (birth + immigration) - (death + emigration).

1.3.2 Natural rate: Birth minus death divided by mid-year population

$$\frac{B - D}{P} = r$$

1.4 Demographic transition:

1.4.1 Measurements of demographic transition (Wertheim test;
40 - 50 per thousand - birth-rate of developing countries;
15 - 25 per thousand - birth-rate of developed countries).

1.4.2 Stages of demographic transition (primitive level = high birth-rate and high death-rate; developing countries = high birth-rate and low death-rate; developed countries = low birth-rate and low death-rate).

II. POPULATION GROWTH

1.0 Trends in population growth

1.1 History of population growth in own country, region, continent and world.

1.2 Data gathering on population:

1.2.1 Population censuses and surveys.

1.2.2 Civil registration (birth; death; marriage; divorce; migration; school enrolment).

1.2.3 Results of censuses and surveys.

1.2.4 Departmental statistics.

1.3 Present trends of population growth:

1.3.1 High and constant birth-rate.

1.3.2 Gradual lowering death-rate.

1.3.3 Implications of population change during transition period in developed and developing countries.

1.3.4 Stability in population growth.

1.4 Future trends (possibilities) of population growth:

1.4.1 Increase in birth-rate.

1.4.2 Decline in birth-rate.

1.4.3 Constancy in birth-rate.

1.4.4 Decline in death-rate.

1.4.5 Rapid population growth.

1.4.6 Slow population growth.

1.4.7 No population growth

1.4.8 Decrease in population.

2.0 Causes of population explosion

2.1 Pro-natality factors:

2.1.1 Desire for large family for economic security, social prestige and power.

2.1.2 Religious influences.

2.1.3 Social norms.

2.1.4 Polygamy.

2.1.5 Inadequate housing.

2.1.6 Privacy in nuclear family.

2.1.7 Security of joining family.

2.1.8 Social pressure for girls to marry.

2.1.9 Psychological urge for married women to have children.

2.1.10 Sex preferences and equilibrium (desire to have sons or daughters or both).

2.1.11 Need for more hands for handicraft and agricultural activities.

2.1.12 Production of more children for providing against expected loss.

2.1.13 Production of more children to prove greater masculine virility/fertility.

2.1.14 Little freedom for wives to decide the number of children.

2.1.15 Legal and religious recognition of the status of male child for purpose of inheritance and family name.

2.1.16 Inducements for having more children (child allowances, tax exemption, maternity facilities, ration etc.).

2.1.17 Lower legal age for first marriage.

2.1.18 Regional/state/racial/ethnic competition for political power.

2.1.19 High proportion of the population in reproductive age.

2.1.20 More manpower for defence needs.

2.1.21 Belief in the ability of agricultural technology and sciences being able to support larger populations.

2.1.22 Remarriage of widows/divorced women.

2.1.23 Short period of breast-feeding.

2.2 Anti-mortality factors:

2.2.1 Health (better maternal medical care and better child care; increased health facilities; improved sanitation; better diet; greater control of diseases; provision of recreational facilities; benefit of maternity leave with full pay; improved water supplies).

2.2.2 Education (increased in- and out-of-school educational facilities; higher educational attainment; health education programme).

2.2,3 General (improved social welfare services; better housing; adequate clothing; improved technology leading to more effective control of natural environments and catastrophies; arguments against population control).

3.0 Consequences of rapid population growth for economic/social development

3.1 Economic development:

3.1.1 Land (smaller land-holdings; scattered land-holdings; uneconomical land-holdings; decrease in cultivated land due to greater demand for buildings; loss to natural fertility of land; greater consumption of limited natural resources; land-holdings unsuitable for the use of modern technology; low quality and quantity of the yield because of saturation point of intensive cultivation).

3.1.2 Capital (decline in per-capita income; neutralization of effort to raise per-capita income; less saving; slow formation of capital for further investment; concentration of capital in fewer hands; low tax-paying ability of the people; greater consumption of government capital for providing social services).

3.1.3 Labour (increase in unemployment/under-employment due to increase of the people in the working-age; increase in unskilled labour; increase in dependency ratio; increase in child labour (because of being cheaper and to supplement family income); lesser employment opportunities for women; lower efficiency/quality of work; lower wages/cheap labour; reduction in the dignity of man/labour; increased competition for jobs; increase in frustration because of increased competition; race for higher competencies/qualification because of increased competition; fewer jobs with good prospects for people of lower socio-economic strata; possibility of mob-violence by labour force and unemployed people).

3.1.4 Industry (proportionately fewer options for teaching modern technology; greater dependence on foreign investment in industrialization; need for industrial development for providing jobs to growing population.

3.2 Social development:

3.2.1 General effects of population growth on social development (shortage of medical, educational, recreational, civic; transportational, communicational facilities; difficulties of financing various kinds of facilities.

3.2.2 Health (poor sanitary conditions; greater possibilities of spread of infectious diseases; lower vitality because of inadequate nutrition; less

immunity to diseases; greater mortality rate; mental retardation; emotional upsets; nervous breakdown; ill-health of workers).

3.2.3 Education (lower quality of education; higher pupil-teacher ratio; remote chances of achieving universal literacy; overcrowding in classrooms).

3.2.4 Transportation (overcrowding in buses/trains; increase in road traffic hazards; low ability to own transportational/communicational facilities).

3.2.5 Social relationships (increase in inter-regional, inter-tribal; inter-sectarian prejudices and clashes of interests; deterioration in landlord-tenant and labour-management relationships; increase in strikes and riots; juvenile delinquency; social mal-adjustment; sibling jealousy).

4.0 Measures to check rapid growth of population

4.1 Individual measures:

4.1.1 Late marriage.

4.1.2 Self-control.

4.1.3 Use of contraceptives.

4.1.4 Longer breast-feeding period.

4.2 National measures:

4.2.1 Family-planning programme.

4.2.2 Provision of clinical facilities.

4.2.3 Population-education programme in schools.

4.2.4 Rise in the legal age of marriage.

4.2.5 Withdrawal of certain government facilities to a family beyond a particular size.

4.2.6 Rewards for family planners/promoters of family planning.

4.3 International measures:

4.3.1 International organizations interested in population control.

4.3.2 Financial aid for national programmes of population control.

4.3.3 Consultant services for planning national programmes of population control.

4.3.4 Facilities for training personnel for population control.

4.3.5 Dissemination of information about population control in different countries.

Primary/Secondary

Group D - Natural Sciences

Miss Akhtar Hamdani	- Afghanistan
Dr. Shu-Pei Lee	- China (Rep. of)
Mrs. Suratmi Imam Sudjahri	- Indonesia
Dr. Mitsufusa Yoshimi	- Japan
Mr. Bounthong Thao	- Laos
Mr. Gajendra Man Shrestha	- Nepal
Mrs. Chusri Nakajud	- Thailand

POPULATION EDUCATION

(Main Headings in Alphabetical Order)

1.0 Ecological aspects of population growth:

1.1 Human activities may tend to upset the stability of plant and animal communities. Such activities may be stimulated by human population growth.

1.1.1 Destruction of forests may give rise to adverse effects such as soil erosion and floods.

1.1.2 Destruction of plants and animals may lead to the total extinction of some species of plants and animals.

1.1.3 Agricultural land can become over-cultivated, giving rise to decreased productivity.

1.1.4 The practice of extensive monoculture (in agriculture) is ecologically a risky undertaking.

1.1.5 Careless use of pesticides can give rise to agricultural problems.

1.1.6 There may be hidden ecological dangers in the practice of building vast irrigation schemes. These dangers include problems of soil fertility and problems of pest growth.

1.1.7 Pollution of water by industrial and other chemical substances may destroy aquatic life (including fishes).

1.1.8 Pollution of water by industrial and other materials may give rise to problems of water supply to human populations.

1.1.9 Pollution of the biosphere with ionizing radiations may adversely affect the biosphere, including the human population itself.

1.1.10 The destruction of plants and the excessive burning of fuels tend to

deplete the atmosphere of its oxygen and to increase the concentration of carbon dioxide. If these tendencies increase, all life may be endangered.

1.2 Air pollution is prone to occur in association with industrialization and urbanization.

1.3 Population fluctuations occur.

1.3.1 For a growing population, the growth curve may be S-shaped for an 'open' population, or 'bell-shaped' for a 'closed' one. (It is possible that the size of the human population will level off - eventually).

1.3.2 For an established population of plants or animals the population fluctuations may be regular or irregular. (There is as yet no generally-accepted theory to explain these population fluctuations).

1.3.3 The amount of fluctuation in the size of populations of wild animals is relatively small when account is taken of the potential amount of fluctuation. (Such stability in the size of population of wild animals must be due to density-dependent factors, affecting reproductive rate or mortality rate).

1.4 The concept of an optimal size of population takes several factors into account.

1.4.1 One of these factors is the welfare of the individual members of the population and of the ecological community.

1.4.2 Another of these factors might be the production of variation in the individual members of the population for "improvement" of the population by the process of selection.

2.0 Food and human population growth:

2.1 Population pressure may serve as a challenge to the development of food resources.

2.1.1 One form in which this challenge appears is the problem of securing enough calories, protein and vitamins to feed the growing numbers of persons.

2.1.2 Undernourishment is common in many countries. (The calorie intake per person per day is judged to be low in many countries, ages 14-18 years; many persons suffer from hunger. Some die of starvation.)

2.1.3 Malnutrition is common in many countries. (The intake of protein per person per day in many countries is judged to be low; the intake of vitamins per person per day in many countries is judged to be low; the intake of mineral substances per person per day in many countries is judged to be low; there is an undesirably high incidence of clinical malnutrition (including protein deficiency and vitamin deficiencies in many countries).

3.0 Genetical aspects of human population growth :

3.1 Population pressure may serve as a stimulus to the development of food resources, including the production of improved breeds of food plants and animals.

3.2 It is still an open question whether the saving of persons who might otherwise have died young of genetical defects will lead to genetical "deterioration" of the population.

3.3 It is still an open question whether the fertility of certain social groups is necessarily lower than that of others, and whether such differential fertility will have an adverse effect upon the genetical "quality" of the population.

4.0 Health and human population growth:

4.1 The health status of human populations is in many cases unsatisfactory. The problem of improving the health status of these populations is aggravated by the expansion in the numbers of persons in them.

4.1.1 Measures which are useful in judging the health status of a population include the following: (nutritional surveys ; ratio of medical and health personnel to the size of the populations ; vital statistics, including mortality rates and morbidity rates).

4.2 The chief reason for the rapid increase in the population in many countries is a fall in the death-rate without a corresponding fall in the birth-rate.

4.2.1 The fall in the death-rate is mainly due to the medical services. (An important part of the medical services which have reduced the death-rate is environmental sanitation ; the principal materials which the medical services have used in reducing the death-rate include chemotherapeutic substances, antibiotics, insecticides, vaccines and sera).

5.0 Mineral resources and human population growth :

5.1 Mineral resources are limited. The danger of depleting them is aggravated by human population growth.

6.0 Reproduction and human population growth:

6.1 The biological processes involved in human fertility involve the union of gametes (fertilization), pregnancy and parturition.

6.2 Health care for mothers include pre-natal and post-natal care and suitable spacing of children.

6.2.1 The risks to mother and child of pregnancy are greater in the early part and later part of the reproductive phase in a woman's life.

6.2.2 Many countries provide facilities for birth planning.

6.2.3 National fertility programmes have been started in many countries.

6.3 The average family size in many countries has been shrinking.

6.4 Certain diseases are known to be associated with the reproductive process.

Group D - Natural Sciences

Classification of population education concepts in the natural sciences according to school-age groups

Concept (Number in the list of concepts)		Average age of pupils 6-12 years	13-15 years	16-18 years
1.1.1	Forests	X	X	X
1.1.2	Extinction	X	X	X
1.1.3	Over-cultivation	X	X	X
1.1.4	Monoculture		X	X
1.1.5	Pesticides		X	X
1.1.6	Irrigation		X	X
1.1.7	Pollution, water	X	X	X
1.1.8	Pollution, water	X	X	X
1.1.9	Ionizing radiations		X	X
1.1.10	Oxygen & carbon dioxide		X	X
1.2	Air pollution	X	X	X
1.3.1	Growth curves	X	X	X
1.3.2	Fluctuation		X	X
1.3.3	Stability		X	X
1.4	Optimal size		X	X
2.1	Food resources	X	X	X
2.1.1	Calories, etc.		X	X
2.1.2	Undernourishment	X	X	X
2.1.3	Malnutrition	X	X	X

Group D - Natural Sciences

Classification of population education concepts in the natural sciences according to school-age groups (cont'd)

Concept (Number in the list of concepts)		Average age of pupils		
		6-12 years	13-15 years	16-18 years
3.1	Breeding	X	X	X
3.2	Genetic deterioration			X
3.3	Genetic quality			X
4.1	Health status	X	X	X
4.1.1	Measures of health		X	X
4.2	Death control		X	X
4.2.1	Death control, medical		X	X
5.1	Mineral resources	X	X	X
6.1	Fertility		X	X
6.2	Maternal care		X	X
6.2.1	Risks to mother		X	X
6.2.2	Birth planning		X	X
6.2.3	National programmes		X	X
6.3	Family size	X	X	X
6.4	Diseases			X

APPENDIX B

SAMPLE TEST QUESTIONS

Levels of achievement

In the study of a particular area of content, pupils may be taught and be expected to reach various levels of achievement in the content area. For example, the pupils may be able to recall and reproduce the actual teaching given, and no more. This, of course, will not provide us information as to whether the pupil has understood what he is recalling.

On the other hand, a higher level of achievement would be if he were able to apply qualitatively or quantitatively what has been taught and learned, in a situation somewhat different to what he has met before in the classroom. It may then be recognized that the pupil shows that he has "understood" what has been taught. This level of achievement may be called "higher" in the sense that it involves more complex operations on the pupil's part than just recalling.

The pupils may be required to achieve even higher levels - of being able to recognize problems, select data, draw conclusions from data, test hypotheses, evaluate in terms of internal or external criteria. These levels of achievement, or behavioural objectives, have been expressed in various ways. A comprehensive classification in the Domain of Knowledge (Cognitive Domain) widely used today is The taxonomy of educational objectives ; Bloom, Benjamin S. et al; Longmans Green & Co. (1956). Other classifications are also available for skill objectives (Psychomotor Domain)* and for attitude and values objectives (Affective Domain)**.

To find out whether the pupil has achieved one or other of these levels, opportunities should be provided to him to respond at the various levels. Test questions are common means of providing such opportunities. Given below are a brief summary of Bloom's Classification of the Cognitive Domain and some sample questions from the social and biological sciences which attempt to illustrate the level of achievement at which the designer requires the pupil to respond. The classification is by no means rigid. A question in one level may be at times

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* Alles, J., *An Outline Analysis of Psychomotor Aspects of Behaviour* in Alles et al., *Theoretical Constructs in Curriculum Development and Evaluation*, Ministry of Education, Ceylon, (1967).

Dave, R.H., *Taxonomy of Educational Objectives and Achievement Testing*, Educational Research Workshop on Problems Related to School Curriculum in Asia, NIER, Japan, (1967).

** Krathwol, D.R., et al., *Taxonomy of Educational Objectives, Handbook II: Affective Domain*, David McKay Company Inc., NY, (1964).

argued to be in another. When such ambiguities and doubts arise, the usual practice is to place the question in the lower level. Each particular content area indicated has been tested for all the levels, so that the change in level may be more clearly visible. In parenthesis, some significant design considerations are included under such questions.

Summary of Bloom's classification of the cognitive domain

Level 1: The pupil can provide responses involving primarily recall of such items as specific facts, terminology, conventions, trends, classifications, criteria, methodology, principles, generalizations.

Level 2: The pupil can provide responses involving more than simple recall. An element of comprehension is required, and may be of the types such as the following : translation of mathematical or verbal material into symbolic statements, and vice versa ; interpretation of data and statements (including simple explanations, data, statements, extension of trends beyond the given data;; determination of effects; corrollaries).

Level 3: The pupil can provide responses involving the application of abstractions in particular concrete situations. The abstractions may be in the form of general ideas, rules of procedure, general methods, technical principles, theories. The applications may include numerical applications as well.

Level 4: The pupil can provide responses involving analysis, synthesis and evaluation. This would include such operations as : recognition of explicit and implicit relations, structure; recognition of unstated assumptions; discriminations of facts from hypotheses; organization of ideas, statements, data; propositions of methods for testing hypotheses, theories; design of experiments and investigations; recognition of logical accuracy, consistency; comparison of theories, generalizations.

(Note: Bloom's classification has subdivided Level 4, above, into levels 4, 5, 6 for each of the components indicated. For simplicity, they have been grouped under one level here).

SOCIAL SCIENCES

Content Area : Population Growth

Level 1

1.1 The rise in population of a country is usually measured by :

i) birth-rate.
ii) growth rate.

iii) death-rate
iv) migration rate

(It is a simple question and the pupil is required to reproduce the information given to him in the classroom).

1.2 The usual cause of high increase in the rate of growth of population in most countries is (high/low) birth-rate and (high/low) death-rate.

(The question may be more complex than Level 1, because the pupil may be deducing the principle. It has been classified under Level 1 because the pupil is likely to have the information in the same form as is given in the question).

Level 2

Table

(Live birth-rates per thousand)

Country	1950	1960
A	45.6	49.9
B	23.4	23.4
C	39.9	42.0
D	30.1	17.2
E	28.9	42.0
F	19.4	14.8
G	28.2	21.4

2.1 In which country has the birth-rate been highest during the period covered in the table ?

2.2 In which country has the birth-rate been lowest ?

2.3 Which of the birth-rates would you classify as high, which medium, and which low ? Why ?

2.4 Which statement is valid ?

i) Country C's birth-rate rose faster than did that of Country A.
ii) Country D has shown the greatest fall in birth-rate.
iii) Country F's birth-rate decrease was greater than that of Country B.
iv) Country E's birth-rate increased faster than did that of Country C.

(The complexity of the questions has now increased and they require some interpretation of the data by the pupil. Hence the questions are put in Level 2. In question 2.3 he has to give reasons also, which involves simple explanation and interpretation).

Level 3 Suppose the annual percentage of growth-rate during 1970-80 of Pakistan remains at 2.5, Japan 0.9, Yugoslavia 1.1, India 2.3, Costa Rica 4.0, U.S.A. 1.6.

3.1 If India's population in 1970 is 530 million, and it were to increase at Japan's rate of 0.9%, what would it be in 1980?

3.2 What apparent relationship in the above data do you find between the rate of population growth and the probable stage of industrialization?

i) No relationship at all.
ii) A low population growth-rate seems to accompany a low stage of industrialization.
iii) A high population growth-rate seems to accompany a high stage of industrialization.
iv) A low population growth-rate seems to accompany a high stage of industrialization.

(In question 3.1 the pupil is required to use his knowledge of the relationship of growth-rate and total population, a simplet type of application of principle. In question 3.2 he has not only to discern relationships but do some logical thinking to arrive at the conclusion. However, both these questions can be put in Level 2, if the teaching in the classroom has used some of the data given above for bringing out the relationship between growth-rate and the stage of industrialization. The situation then does not remain new and at the best the pupil gives evidence of his 'comprehension' by seeing the relationship).

3.3 In which situations is the growth-rate likely to be highest and lowest, if no birth control measures are adopted and the death-rate is kept constant and equal?

Situation	Proportion of the population according to age-groups by country		
	Below 20 years	Between 20-50 years	Above 50 years
A	45%	35%	20%
B	30%	45%	25%
C	50%	25%	25%
D	30%	40%	30%

Give reasons to support your answer.

(This question creates hypothetical situations with which the pupil is not familiar. He has to examine each age-group of population in each situation, do an analysis, apply his knowledge about fertility, and then come to conclusions. It involves some degree of critical thinking on the part of the pupil, which is a more complex operation than either recall or comprehension).

Level 4 In a particular country, the society is traditional, custom-bound, and agrarian. Peasants produce for local consumption and there is no help available from outside. A large percentage of people are illiterate. Children start working when they are young. Children support parents in old age. The standard of living is quite low because of low per-capita income. There are famines and other calamities also, but the completed family size is high.

4.1 Study the situation given above and check the most likely generalization with regard to the nature of the population, from the alternatives given below:

i) It will be a slow-growing population.
ii) It will be a fast-growing population.
iii) It will be a declining population.
iv) It will be a static population.

(In this question, the pupil is required to analyse the situation, and apply knowledge to select or reject hypotheses. He has to reason critically, come to the correct assumption, and then generalize).

BIOLOGICAL SCIENCE

Content Area : Ecosystems

Level 1

1.1 Which of the following is an example of an abiotic factor which can affect the size of a population of plants?

i) Climate.
ii) Consumer.
iii) Parasite.
iv) Saprophyte.

(The expected response (alternative (i)) is a straightforward recall of one of the best known of abiotic factors - climate. The other three alternatives all refer to well-known biotic and not abiotic factors).

1.2 Which of the following populations is at present in danger of extinction as a result of human activities ?

i) Elephant
ii) Cattle
iii) Crow
iv) Gecko

(The expected response (alternative (i)) is recall of the danger to wild life, including the elephant, of human encroachment into forests. The other alternatives are to be recognized as animals which increase rather than decrease with man).

Level 2

2.1 The most important interrelationship which keeps an ordinary household fish tank as an ongoing ecosystem is the relationship between the fish and the

i) plants in the tank.
ii) micro-organisms in the tank bed.
iii) sunlight in the room.
iv) human beings in the house.

(The choice response (alternative (iv)) is expected to be based on his understanding that the aquarium fish will die, despite plants, micro-organisms or sunlight, unless fed by man).

2.2 Which of the following is necessarily a part of all natural and artificial ecosystems ?

i) Gases
ii) Land
iii) Man
iv) Sun

(The choice response (alternative (i)) is expected to be based on his understanding that there can be ecosystems without land (e.g. sea ecosystem), man (e.g. forest), or sun (e.g. aquarium in artificial light), but that gases are inevitably a part of any ecosystem - gases for use, or discharge, by the system).

Level 3

3.1 A household fish tank contained a community of fishes including gold fish and angel fish. One day, the owner removed the gold fish population to another vessel. Within a few days of this removal, the floor of the fish tank became covered with a growth of fungus. The owner then put the gold fish back into the tank. The gold fish were seen to eat the fungus, and the fungal population disappeared from the floor of the tank within the next few days. Which of the following

interrelationships is most closely connected to the above case of disturbance and restoration of the 'balance of nature' in the fish tank?

i) Intraspecific competition.
ii) Interspecific competition.
iii) Herbivore-plant relationships.
iv) Predator-prey relationships.

(The correct response (alternative (iii)) is based on the application of the idea of the herbivore-plant relationship to the situation described. The other three relationships do not apply to it).

3.2 The population of wild life tends to decrease as human population increases. Which of the following interrelationships is most closely connected to the above?

i) Intraspecific competition.
ii) Interspecific competition.
iii) Herbivore-plant relationships.
iv) Predator-prey relationships.

(It is principally a case of interspecific competition, alternative (ii)

Level 4

4.1 There are three populations of weaver birds in a certain region. They belong to three different species, but they all live in the same region. Their foods are different. Which of the following concepts best receives support from the above case?

i) Energy flows from producer species to consumer species in a pyramidal pattern.
ii) There is competition between species occupying the same ecological niche.
iii) Population density is affected by biotic as well as abiotic environmental factors.
iv) The actual fluctuation in population size of wild animals is less than the potential fluctuation.

(The pupil is expected to match the case cited in the stem of the test item against the four concepts which are stated in the four alternatives. He is expected to judge which the best match is. The expected correct response is alternative (ii)).

4.2 Which of the following would you regard as being an example which necessarily illustrates (a) unintentional competition between two species of organisms in an ecosystem, as well as (b) human population pressure?

i) The cutting down of forest trees by man.

ii) The death of fish in a river which is polluted by chemical wastes from a factory.
iii) The survival of DDT-resistant house-flies in a town.
iv) None of the above.

(The pupil is expected to analyse the situations described in alternatives (i), (ii), and (iii) in order to judge whether they are necessarily cases of competition plus pressure. None of them fits this requirement, and alternative (iv) is therefore the correct response).

APPENDIX C

REFERENCE MATERIAL ON POPULATION EDUCATION AVAILABLE AT THE WORKSHOP LIBRARY

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ANNEX I

Opening address by H.E. Dr. Sombun Phong-Aksara, Deputy Minister of Public Health, Government of Thailand

The Honorable Director, Unesco Regional Office for Education in Asia, Distinguished Delegates, Ladies and Gentlemen:

On behalf of the Government of Thailand and on my own behalf, it is my pleasure to extend to you all a most cordial welcome to Thailand, and wish you all a happy and pleasant stay in our country.

Economic development, improvement of the well-being of our people, improvement in the social services like health, education, welfare, are challenges we in Asia have taken up with great earnestness. It is heartening to see that all our Asian countries are so actively tackling these problems which include food supplies, housing, transportation, health services, education, employment, and economic development.

These problems, immense as they are at present, are complicated by the high rates of population increase in Asian countries which threaten to nullify national efforts to improve the living standards, health, education and welfare of the people. The current rapid population growth is caused not only by an increased birth-rate, but by a decline in the death-rate, a decline that has accelerated greatly since the end of World War II. The decline is due to improved food production and distribution, more effective social organization, and the mass application of modern public health measures such as antibiotics insecticides, and vaccines. As a result, many Asian countries were able to cut off their death-rate by half within a decade, and the death-rate in those countries has still continued to decline.

The rapid rate of population increase of countries with a high birth-rate produces a population with a relatively high proportion of children. In many Asian countries about 45 per cent of the population are under 15 years of age, whereas this figure is 25 per cent in the developed nations. The young age-structure of population means the increasing demand in education, child welfare, school health services and other health services to be provided for children and adolescents.

Of particular importance is the fact that, since more children have been born after World War II and the majority of these children have now survived to the childbearing ages, they present a great potential for even the higher rate of population increase in the future. Being well aware of this phenomenon, some Asian countries have introduced population, family planning and related subjects into their school curriculum. However, although educators are concerned about the population problem in their own countries and are ready to give serious thought to the appropriate action within the education system, yet the action has not been taken in most of the countries in this Region. Up to this time, the

family planning personnel, operating out of ministries of health, have had limited contacts with ministries of education. In view of potential contributions which education systems can make over the long period of time during which Asian nations will be facing population problems, active collaboration is needed.

In this context, I am glad to see that so many distinguished participants from Asia and other parts of the world have gathered together here to give thought to the population problems in relation to socio-economic development. Of course the nature of the population problems differs from country to country, but there is so much in common that collective consideration of these problems will be of much mutual benefit. It is also appropriate that the focus of your thoughts should be Asia, which is the most populous continent in the world. I am also gratified that you are considering these questions in relation to education. Education is a means by which a society prepares itself for the future. Young people who are in the schools today will, in a decade, be adults responsible for the economic, social and spiritual well-being of the society. They should therefore learn to study these problems, to analyse them and see what the various implications are. What they learn should, of course, be scientific and in a form appropriate to their age, maturity and cultural background. These are all difficult but important questions of educational up-bringing. It is therefore reassuring to see in this distinguished gathering so many experienced educationists and scientists.

Your Workshop has set important objectives for itself. You will study how elements of population and family life education can be incorporated in school curricula and prepare materials to illustrate the methods of doing this. So you will have to draw upon many sources of knowledge - science, medical science, economics, demography and other social sciences.

I see that you have a very heavy Agenda of work for the next four weeks. Though it is a heavy agenda, it is very practical in its outlook. You will have large and small group discussions, and you will be preparing materials which will provide the guidelines for further work.

But I hope that you will give yourself some time to see our country and meet our people. I can assure you on their behalf of a warm and friendly welcome.

I wish to congratulate the Unesco Regional Office in Bangkok on its initiative in convening this Workshop and on the excellent thought-provoking documents it has placed before you. I shall look forward to the results of your deliberations with very great interest.

I have pleasure in declaring the Workshop open and to wish you every success in your undertaking.

ANNEX I

Statement of Welcome by Mr. Raja Roy Singh, Director, Unesco Regional Office for Education in Asia

On behalf of Unesco and on my own behalf, I have great pleasure in extending to all our participants, representatives of U.N. and other Organizations, and observers, a warm welcome to the Regional Workshop on Population and Family Education. I should also like to avail myself of this opportunity to express on behalf of Unesco our gratitude to Your Excellency for agreeing to inaugurate this Workshop in spite of the many heavy calls on your time. Your Excellency is known for the deep interest in all problems of population and family welfare, and it is an honour to all of us that you are with us this morning to inaugurate this Workshop.

I should also like to express our gratitude to the Government of Thailand and its various agencies for the encouragement, support and facilities they have given us to make the convention of this Workshop possible. Unesco has at all times received from the Government of Thailand cooperation and help in a generous measure, and the Government's courtesies extended to this Workshop are yet another instance of the Government's continuing support to all endeavours of regional cooperation.

This Regional Workshop, starting today, will be at work for one full month. These deliberations are addressed to a problem which is of very great significance for the future development of our developing countries in the region. In many ways it is a unique Workshop because it deals with a problem and in a context, for which there are very few precedents. The problem undoubtedly is there; we know in some degree its implications and how it effects human well-being. But what can education do in relation to this problem? That certainly is by no means clear. And that, I suggest, is the approach of this Workshop; namely, that the Workshop is a collective search. The answer is not known, nor can it be taken for granted. It is in this spirit of an enquiry and of a collective search that this Workshop has been organized, and not to hand down any ready-made answers. Nobody has them; but it is possible that jointly as we go along, analyse, discuss, test our different approaches, we might begin to see some clearing ahead: if not all the answers, at least some of the directions in which the answers might be sought. We also hope that the results of these collective efforts would take the form of concrete curriculum materials which can be seen, analysed and questioned by others.

His Excellency the Minister of Education of the Government of Thailand has graciously sent a message to the Workshop and I am sure that all the participants would like to join me in conveying to His Excellency the Minister of Education our expression of thanks for his message.

In conclusion, I once again thank you all for participating in this Workshop.

Message from H.E. Sukich Nimmanheminda, Minister of Education, Thailand

When the subject of this Regional Workshop was first mentioned to me, my natural reaction was to refer it to the Ministry of Public Health. It is hardly surprising, considering that even Burleson, an authority on the subject himself, remarked that it was a new concept, not yet adequately defined. To a layman the term 'population education' immediately implies family planning only. Now, thanks to the elucidating working document prepared by the Unesco Regional Office for Education in Asia for the Workshop, it has become evident that the subject opens up a new and wide field of study, of which family planning is only a consequence.

The problem of population explosion has just begun to be felt in this part of the world. Actually, Thailand, which was wont to boast of her natural and abundant resources - fishes in the water and rice in the field, had been quite unconcerned about it except for the knowing few. Lately, however, this problem has received considerable attention from the public. The rising cost of living no doubt contributes much to the awareness of this danger. The question of family planning was openly discussed in the press and in seminars. It is very timely that Unesco is organizing this Workshop now.

The danger of population explosion is real and pressing, and we appreciate Unesco's efforts in taking steps to remedy the situation. Traditionally the people of Thailand and of other countries in this region like to have large families, and it has been an up-hill work trying to persuade the rural people to adopt any measure to reduce the size of their families. To educate school children in the new concept will take time but will yield a lasting result. I am gratified that the subject of population education will be incorporated into the school curricula, even though this will give rise to further problems, such as what topics should be included, what method of teaching and when and how they should be taught. But, as this is a gathering of curriculum and subject specialists, I feel reassured to leave the wrestling of these problems and many others to you all. It is my earnest hope that the month-long Regional Workshop on Population Education will be successful and productive. To the participants from abroad, may I extend to you all a warm and hearty welcome and hope that you will all feel 'at home' in our capital city.

Thank you!

ANNEX II

Officers elected by the Workshop

Chairman of the Workshop:	Dr. Saiyut Champatong (Thailand)
Steering Committee:	Miss Akhtar Hamdani (Afghanistan)
	Prof. Shu-Pei Lee (Rep. of China)
	Mrs. Suratmi Iman Sudjahri (Indonesia)
	Dr. Mukhta Ahmad Bhatti (Pakistan)
	Dr. Abu Hamid Latif (Pakistan)
	Dr. Saiyut Champatong (Thailand)
	Mme. Lâm Thanh Liêm (Rep. of Viet-Nam)
	Prof. V. Basnayake (Unesco Consultant)
	Mr. D. Chauls (Unesco Consultant)
	Prof. T.S. Mehta (Unesco Consultant)
	Mr. J. Ratnaike (Secretary of the Workshop)
Secretary of the Workshop:	Mr. J. Ratnaike, Education Adviser, Unesco Regional Office for Education in Asia.

ANNEX III

WORKSHOP AGENDA

Notes

1. Normal workshop hours: 9.00 - 12.00 and 1.30 - 4.00.
2. Coffee breaks approximately 20 minutes, at about 10.30 a.m. and 3.30 p.m.
3. Small Groups (8-12 September): composed of about six members each, with disciplinary backgrounds as varied as possible.
4. Disciplinary Groups (14-16 September and 30 September): composed of about six members each with homogeneous disciplinary backgrounds.
5. Working Groups (17-29 September): formed within disciplinary groups to prepare materials.
6. Plenary discussion sessions on 2-5 October are expected to produce lists of conclusions which will be summarized and presented for final discussion and adoption on 6-7 October. The adopted list of conclusions will be included in the Final Report.
7. Discussion topics are listed in the appendix to the Provisional Workshop Agenda.
8. Participants are to arrive in Bangkok on Sunday 6 September. An open house will be held at the Asia Hotel from 6.00 - 9.00 p.m.

Monday, 7 September

8.30 Registration
9.30 Inaugural Programme
11.00 First Plenary session: Election of Officers; discussion of workshop procedures
12.00 Lunch break
1.30 Plenary: discussion of Provisional Workshop Agenda
3.20 Familiarization with Workshop Library

Tuesday, 8 September

9.00 Plenary: some relevant demographic concepts; demographic exercises - Don Chauls, Unesco Consultant
12.00 Lunch break
1.30 Formation of small groups (Plenary followed by groups)
Small Group Discussion: an overview of the population problem (Kalpitha): variables relevant to the design of a population education programme (see Appendix A of Main Working Document)

ANNEX III

Wednesday, 9 September

9.00 Plenary: participants' descriptions of population and population education situations in their countries
11.00 Plenary: information on international organizations and activities in population education
12.00 Lunch break
1.30 Plenary: morning sessions continued
2.30 Plenary: the relationship between population growth and economic and social development - G. Jones, NEDB

Thursday, 10 September

9.00 Small Group Discussion: the relationship between population growth and economic and social development
10.00 Plenary: socio-cultural, psychological, educational, ecological consequences of rapid population growth - G.R. Amritmahal, ECAFE
12.00 Lunch break
1.30 Plenary: morning sessions continued
3.00 Plenary: determinants of fertility behaviour - Prof. M. Amani (Iran)

Friday, 11 September

9.00 Plenary: the determinants and consequences approach to the study of population - Don Chauls, Unesco Consultant
10.00 Plenary: definition and general objectives of population education - Prof. T.S. Mehta, Unesco Consultant
11.15 Small Group Discussion: definition and general objectives of population education: relationship to sex education
12.00 Lunch break
1.30 Small Group Discussion: continuation and resolution into primary and secondary levels

Saturday, 12 September

9.00 Small Group Discussion: continuation
12.00 Lunch break
Afternoon - free

Monday, 14 September

9.00 Plenary: presentation of small group reports on definition, general objectives, relationship to sex education, level of schooling, etc., and Plenary Discussion
12.00 Lunch break

Monday, 14 September (cont'd.)

1.30 Plenary: population education in the natural and social sciences by educational level, objectives, and selection of content. - Prof. V. Basnayake/Prof. T.S. Mehta, Unesco Consultants

Tuesday, 15 September

9.00 Disciplinary Group Discussion: objectives and selection of content
12.00 Lunch break
1.30 Disciplinary Group Discussion: continued

Wednesday, 16 September

a.m. Disciplinary Group Discussion: continued, and review of
p.m. existing curricula materials

Thursday, 17 September

a.m. Disciplinary Group Discussion: continued, and selection of writing units/Working Groups (sub-groups of the Disciplinary Groups)
1.30 Plenary: different types of curricula materials; criteria for evaluation - Prof. V. Basnayake, Unesco Consultant
2.30 Working Group Discussion: detailed preparation of objectives - content/behavioural

Friday, 18 September. Monday, 21 September. Tuesday, 29 September.

9.00 Working Groups: preparation of curricular materials continued
12.00 Lunch break
1.30 Working Groups: preparation of curricular materials continued

Tuesday, 22 September

1.30 Plenary: Production and use of educational film loops - D. Segaller, Colombo Plan Expert. Film from the Republic of China

Wednesday, 30 September

9.00 Disciplinary Group Discussion: analysis and revision of curricular materials prepared by Working Groups
12.00 Lunch break
1.30 Morning discussion continued

ANNEX III

Thursday, 1 October

9.00 Disciplinary Group Discussion: continued
12.00 Lunch break
3.00 Plenary: significant problems in the production of instructional materials by Working Groups

Friday, 2 October

9.00 Working Groups: analysis and revision of curricula materials prepared by Working Groups

10.00 Plenary: finalizing definition/general/specific objectives - report of sub-committee on objectives
12.00 Lunch break
1.30 Plenary: strategies to implement a population education programme

Saturday, 3 October

9.00 Plenary: other facets of a population education programme, especially teacher education
12.00 Lunch break
Afternoon free

Monday, 5 October

9.00 Plenary: needed research related to population education
12.00 Lunch break
1.30 Plenary: suggestions for future international activities to promote population education

Tuesday, 6 October

9.00 Plenary: list of conclusions
12.00 Lunch break
1.30 Plenary: draft Final Report

Wednesday, 7 October

9.00 Plenary: adoption of conclusions and Final Report
Closing Programme

ANNEX III

DISCUSSION TOPICS

(Appended to Provisional Workshop Agenda and sent to participants in advance)

A major part of the Workshop will be devoted to the exploration of possible content for a population education programme. Straight 'lecturing' will be minimal and group discussions will attempt to provide opportunities for frank dialogue among participants. Within such a context, discussions will focus both on aspects of the population problem itself and on appropriate content for a school attempt to help alleviate that problem. In addition, some group discussions will also focus on different, non-curricular, aspects of programme development.

Wherever the nature of the topics so warrants, it is expected that the discussions shall generate a list of conclusions which will be incorporated into the Final Report of this Workshop.

Some of the questions which may provide points of departure for the discussions are indicated below. Each of these topics is cross-referenced to the Main Working Document. Additional topics for discussion will no doubt arise during the Workshop itself.

DT 1) What are some of the cultural factors in your society which contribute to the development of the pro-natalist norm? Do present school curricula influence this norm in any way? Is there any legal encouragement for large families? List any anti-natalist factors at work within your culture.

DT 2) Is population growth viewed as a threat to economic development in your country? In what manner and to what extent?

DT 3) What are reasons for favouring a relatively rapid population growth rate? Discuss the validity of these reasons within the context of your country.

DT 4) How would you define population education within the specific context of your country?

DT 5) What topics should be included in a population education programme for your country? List them in rough order of priority.

DT 6) What is sex education? What should be its relationship to population education? Is the 'controversial' vs. 'non-controversial' framework, and the argument for at least temporarily excluding the former, a useful one?

ANNEX III

DT 7) Assume that a population education programme in your country will eventually exist at all levels within the school system. Given your present resource situation (and limitations), it may be preferable to begin such a programme at either elementary or secondary level. Which would be most likely to be effective? Why?

DT 8) A population education programme need not consist solely of units added to existing subjects; there are a number of other approaches to incorporating population content into a school programme. Discuss the advantages and disadvantages of each approach and outline an appropriate mix for a complete population education programme for your country. During the developing stages of the programme, which approach(es) should be given priority and why?

DT 9) Curriculum is, of course, only one aspect of a school programme. In planning the development of population education for your country, what other factors need be considered as parts of a complete programme? How can these parts be planned to ensure the most effective and efficient development of the programme? How should priorities be established among the parts?

DT 10) What areas of research would be most beneficial as curricular or other inputs to a population education programme for your country? What topics deserve highest priority? and why?

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ANNEX IV

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